Model HD-1000 series

Handheld Thermometer

Model HD-1000 series handheld thermometers allow easy temperature measurement.
These general-purpose thermometers can be used for on-site temperature measurement and various other applications.

HD-1000模式系列
追求高精准度，可靠性，操作简单的HD-1000系列可以和安立计器的多种多样的温度传感器配合使用于不同领域。

HD-1000シリーズは、簡単に温度測定が出来るハンディタイプの温度計測器です。現場での温度チェックなど、汎用的にご使用いただけます。

HD-1150K
HD-1150E

HD-1150K

HD-1250K
HD-1250E

HD-1250K

HD-1350K
HD-1350E

HD-1350K

HD-1450K
HD-1450E

HD-1450K

HD-1550K
HD-1550E

HD-1550K

Function of HD-1000 series

ASP model	ANP model	WATER PROOF	DISPLAY	BACK LIGHT	AUTO OFF	HOLD	P/V HOLD	1/0.1	CAL	ALARM	ANALOG	°C / °F	MEMORY
HD-1100K HD-1100E	HD-1150K HD-1150E	●	LCD		●	●						°C	
HD-1200K HD-1200E	HD-1250K HD-1250E	●	LCD	●	●	●	●	●				°C	
HD-1201K HD-1201E	HD-1251K HD-1251E		LCD	●	●	●	●	●			1mV / °C	°C	
HD-1202K HD-1202E	HD-1252K HD-1252E		LCD	●	●	●	●	●			10mV / °C	°C	
HD-1300K HD-1300E	HD-1350K HD-1350E		LCD	●	●	●	●	●	●	●		°C	
HD-1301K HD-1301E	HD-1351K HD-1351E		LCD	●	●	●	●	●	●	●	1mV / °C	°C	
HD-1302K HD-1302E	HD-1352K HD-1352E		LCD	●	●	●	●	●	●	●	10mV / °C	°C	
HD-1400K HD-1400E	HD-1450K HD-1450E	●	LED		●	●						°C	
HD-1500K HD-1500E	HD-1550K HD-1550E		LCD	●	●	●	●	●				°C	●
	HD-1650K HD-1650E	●	LCD		●	●						°C / °F	
	HD-1750K HD-1750E	●	LCD	●	●	●	●	●				°C / °F	

Connector type 连接传感器

2 types of connectors available
有2种插口可供选择。

ASP :
Standard size connector

ANP :
Miniature size connector

Functions 功 能

Waterproof specifications 防水功能

Waterproof specifications : Equivalent to IPX5
Protected against water jets - Water projected at all angles through a 6.3mm nozzle at a flow rate of 12.5 liters/min at a pressure of 30kN/m² for 3 minutes from a distance of 3 meters.

IPX5防水功能。可防御来自任何方向的喷水(12.5L/分)。

Memory function 记录功能

Stores readings at user - selected time intervals. User specified time interval and the remaining amount of memory are displayed on the sub - display.

设定记录间隔和剩余可记录数同时显示。

Display 显 示

Large easy - to - read LCD display

便于确认的大型显示屏

Backlight 背光灯

The backlight will operate by the key and the LCD display will be visible even in a dark place.

按键打开背光灯，可在黑暗处确认数据

AUTO OFF Auto power - off 自动关闭

The thermometer will turn the power off automatically after 5 minutes.

5分钟以上不使用按钮，主机将自动关闭。

1/0.1 Resolution change 分辨率切换

Press the 1/0.1 key to change the resolution of readings.

按1/0.1键切换分辨率

HOLD Hold 固定测量数据

The thermometer stops measurement by the HOLD key and holds the present readings.

按HOLD键，可固定测量数据并保持该数据的显示。

P/V HOLD P / V Hold P/V 值固定

The peak (Max.) value and the valley (Min.) value can be displayed by the P/V HOLD key on the sub-display.

可固定测量温度的最大值或最小值

CAL SET Calibration 校 准

The displayed value can be adjusted by the CAL SET key.

可设定测量标准值。

ALM SET Alarm output 报警输出

The thermometer gives an alarm when readings go beyond the high or low limits.

表示温度超出设定范围外时，可显示・蜂鸣・信号输出进行警告。

Analog output 模拟输出

1mV/℃ Output 1mV per ℃ in conjunction with readings.
10mV/℃ Output 10mV per ℃ in conjunction with readings.

电压输出时1℃为1mV或1℃为0.1mV。

°C / °F °C / °F Change °C / ℉切换

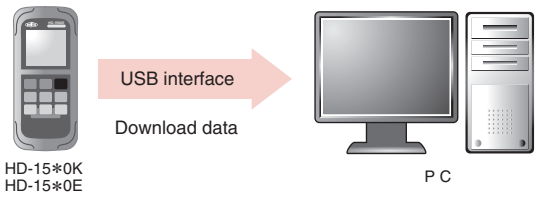
Press the °C/℉ key to change the temperature unit of the displayed temperature.

按°C/℉键切换℃与℉。

Software for HD-15*0 (AMS-100) 专用软件

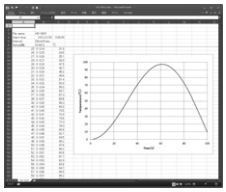
Data stored in memory can be transmitted to a personal computer through a USB interface and can be converted into CSV files.

可用USB导线将数据传到电脑，以CSV形式保存。



Easily create graphs and tables from CSV files by Microsoft® Excel® or other spreadsheet software.

用Excel等软件进行制表・画图。



●Operational environment of software (AMS-100)

O S	Microsoft® Windows® XP (SP.3 or newer), Windows Vista®, Windows® 7
Memory・Hard-disk space	Normal operating environment of OS
Communication interface	USB 1.1

※ All PCs under the recommended environment are not guaranteed to work successfully with AMS-100.
※ AMS-100 can be used only by the user that has a system administrative right (Administrator).
※ AMS-100 does not support Mac OS.
※ Microsoft® Windows® XP, Windows Vista®, Windows® 7 and Excel® are registered trademarks of Microsoft Corporation in the United States and other countries.

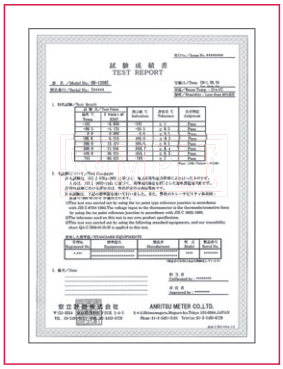
※ Image picture of waterproof specifications
※ 防水功能图片

※ Image picture of temperature measurement
※ 测量温度图片

●Supplied accessories and Optional accessories 附件和选件

Supplied accessories

Test report
试验成绩书



Soft case
主机套

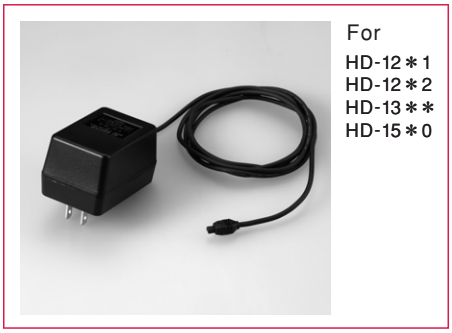
SCHD
Thermometer not included
不包括本体。

Hand strap
手带

Thermometer not included
不包括本体。

Optional accessories

AC-Adaptor
AC电源

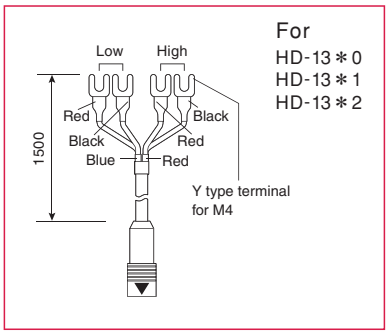


For
HD-12＊1
HD-12＊2
HD-13＊＊
HD-15＊0

A-115-200-HR-R (for AC115)
A-220-200-HR-R (for AC220)
Not CE-approval

Supplied accessories

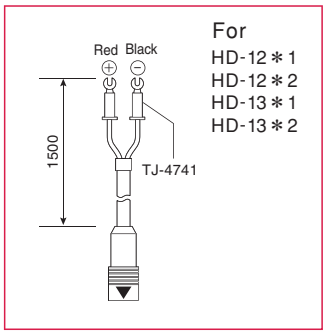
Alarm output cable
报警输出线



For
HD-13＊0
HD-13＊1
HD-13＊2

ALMHA-1.5

Analog output cable
模拟输出线



For
HD-12＊1
HD-12＊2
HD-13＊1
HD-13＊2

ANGHA-1.5

Communication cable
通信用USB线

For
HD-15*0

AM-USB (for USB)

Software for HD-15*0 (CD-ROM)
软 件

For
HD-15*0

AMS-100

※ An alarm output cable and an analog output cable cannot be used simultaneously.
※ 不能同时使用报警输出线和模拟输出线

Specifications

Model		HD-1100 HD-1150 HD-1650	HD-1200 HD-1250 HD-1750	HD-1201 HD-1251	HD-1202 HD-1252	HD-1300 HD-1350	HD-1301 HD-1351	HD-1302 HD-1352	HD-1400 HD-1450	HD-1500 HD-1550
Waterproof specifications / Equivalent to IPX5		●	●						●	
Display		LCD	LCD with Backlight						LED	LCD with Backlight
Input connector		ASP model : HD-1∗0∗ / ANP model : HD-1∗5∗								
Channel		1ch								
Input type		Thermocouple input : Type E or K (HD-1∗0∗) / Type E, K, J, T or R (HD-1∗5∗) Not switchable								
Signal source resistance		MAX 500Ω								
Measurement range		*TABLE I								
Measurement accuracy		*TABLE II								
Reference junction compensation accuracy		±0.2℃ at 25℃±10℃ [±0.4°F at 77°F±18°F]								
Temperature coefficient		±0.01% of F / S per ℃ [±0.01% of F / S per °F] ※ F / S : full scale								
Environmental	Operation	0～40℃, 0～80%RH (Non condensing) [32～104°F, 0～80%RH (Non condensing)]								
	Storage	−20～50℃, 0～85%RH (Non condensing) [−4～122°F, 0～85%RH (Non condensing)]								
Battery life		300h	300h	150h	150h	300h	150h	150h	150h	150h
Power supply	Dry battery	4 AA Alkaline batteries								
	AC power	—	—	AC-Adaptor (Option)					—	AC-Adaptor (Option)
Sampling rate		approx. 300ms								approx. 300ms *1
Plinearlizer		Digital linearlizer method (Compliant with IEC 60584-1 (1995))								
Dimensions		approx. 76 (W) × 167 (H) × 36 (D) mm [Protruded parts excluded]								
Weight		approx. 350g [Include Batteries]								
Supplied accessories		Manual, Test report, Softcase, Hand strap, 4 AA Alkaline batteries								
		—	—	Analog output cable		Alarm output cable			—	Communication cable, Software (AMS-100)
						—	Analog output cable			
Analog output		—	—	1mV/℃	10mV/℃	—	1mV/℃	10mV/℃	—	—
				*TABLE III	*TABLE III		*TABLE III	*TABLE III		
Alarm output		—	—	—	—	● *TABLE IV	● *TABLE IV	● *TABLE IV	—	—
Memory function		—	—	—	—	—	—	—	—	● *TABLE V
Compatible standards		CE Marking, RoHS								

*1 Sampling period will be a user-selected time interval when time interval is specified at 10 seconds or more.

*TABLE I (Measurement range)

Thermocouple type	℃		°F	
	1℃ Resolution	0.1℃ Resolution	1°F Resolution	0.1°F Resolution
E	−200～ 800℃	−100.0～500.0℃	−328～1472°F	−148.0～932.0°F
K	−200～1370℃		−328～2498°F	
J	−200～1100℃		−328～2012°F	
T	−200～ 400℃	−100.0～400.0℃	−328～ 752°F	−148.0～752.0°F
R	0～1760℃		32～3200°F	

※ Switches automatically to 1℃ resolution range when measured temperatures fall outside the 0.1℃ resolution range.

*TABLE II (Measurement accuracy)

Themocouple type	℃			°F		
E, K, J, T	0.1℃ Resolution	0℃～	± (0.05% of reading +0.2℃)	0.1°F Resolution	32°F～	± (0.05% of reading +0.4°F)
		～0℃	± 0.5℃		～32°F	± 0.5°F
	1℃ Resolution	0℃～	± (0.1% of reading +1℃)	1°F Resolution	32°F～	± (0.1% of reading +2°F)
		～0℃	± (0.5% of reading +1℃)		～32°F	± (0.5% of reading +2°F)
R	1℃ Resolution		± (0.1% of reading +3℃)	1°F Resolution		± (0.1% of reading +6°F)

*TABLE III (Analog output)

Environment	Accuracy
25℃±5℃	± (0.15% of F/S+1mV)
Except 25℃±5℃	± ((0.15% of F/S+1mV) + (0.01% of F/S))

※ Output Impedance 100Ω ※ F / S : full scale

*TABLE IV (Alarm output)

Output pattern	Upper limit	Lower limit
More than upper limit	H (5V)	L (0V)
Between upper and lower limit	L (0V)	L (0V)
Less than lower limit	L (0V)	H (5V)

※ Signal current of up to 5 mA can be taken out.

*TABLE V (Memory function)

Time interval	1second, 5 seconds, 10 seconds, 30 seconds, 1 minute, 5 minutes, 10 minutes, 30 minutes, 60 minutes and manual memory
Memory capacity	9999 data

Model AP-800 series

Thermo Printer

Model AP-800 series thermometers have built-in printers for on-the-spot printing of measurement data.

AP-800模式系列
AP-800模式系列产品是内装打印机型温度计。
测定出的数据可以立即打印。

AP-800シリーズは、プリンタを内蔵した温度計測器です。
測定データを、その場で印刷する事ができます。

AP-810K
AP-810E

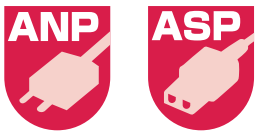
AP-810K

AP-810MK
AP-810ME

AP-810MK

AP-820K
AP-820E

AP-820K



AP-810KS
Please indicate S, when you order ASP plug Instruments.
ASP model of AP-800 series is not correspondence to CE.

Manual Print AP-810, AP-810M, AP-820

```
10:35:09    456.0℃
10:35:15    425.0℃
10:35:23    423.0℃
10:35:27    420.5℃
10:35:36    419.3℃
```

Manual print-out is available simply by pushing the PRT key. Measured data with absolute time (Hours: Minutes: Seconds) can be printed.
The PRT key works in any function mode.

Interval Print AP-810, AP-810M, AP-820

```
06.01.20
AUTO 10 s
10:35:10    423.0℃
10:35:20    420.5℃
10:35:30    419.3℃
```

The SET key enables the operator to select a time mode from eight kinds of intervals (3s, 10s, 30s, 1min, 5min, 10min, 30min and 60min.).

Number Print AP-810, AP-810M, AP-820

```
06.01.20
NUMBER PRINT
####0001    423.0℃
####0002    420.5℃
####0003    419.3℃
```

Print number

The numbering print provides the sequential numbering.

Memory Print AP-810M

```
06.01.20
AUTO 10 s
10:35:10    423.0℃
10:35:20    420.5℃
10:35:30    419.3℃
```

Remain data

AP-810M has 100 data memory function.
After measurement, measured data stored in memory can be printed.

2 channels Print AP-820

```
06.01.20
AUTO 3 s
10:35:16
1ch     2ch
200.0   100.0 ℃
```

```
06.01.20
AUTO 3 s
10:35:16
1ch     2ch     1-2ch
200.0   100.0 ℃ 100.0 ℃
```

AP-820 has 2 input connectors and measured data can be printed at the same time.

Function of AP-800 series

Model No.		DISPLAY	HOLD	MANUAL PRINT	AUTOMATIC PRINT	No. PRINT	MEMORY PRINT	2ch. PRINT
AP-810K	**AP-810E**	LCD	●	●	●	●		
AP-810MK	**AP-810ME**	LCD	●	●	●	●	●	
AP-820K	**AP-820E**	LCD	●	●	●	●		●

Specifications

Model		AP-810	AP-810M	AP-820
Display		LCD		
Input type		Thermocouple input : Type E, K, J, T, R		
Channel		1ch		2ch
Signal source resistance		MAX 500Ω		
Measurement range		*TABLE I		
Measurement accuracy		*TABLE II		
Reference junction compensation accuracy		±0.2℃ at 25℃±10℃ [±0.4°F at 77°F±18°F]		
Temperature coefficient		±0.01% of full scale ℃ [0.01% of full scale °F]		
Environmental limit	Operation	0～40℃, 0～80%RH (Without dew) [32～104°F, 0～80%RH (Without dew)]		
	Storage	−20～50℃, 0～85%RH (Without dew) [−4～122°F, 0～85%RH (Without dew)]		
Sampling rate		*TABLE III		
Battery life		*TABLE III		
Power supply		NiMH (6HR-AU)		
Linearlizer		Digital linearlizer method (Compliant with IEC 60584-1 (1995))		
Print out		Character size 2mm, Paper width 58mm (1400 lines/roll), Thermal line dot printing		
Memory		—	100 data	—
Dimensions		approx. 88 (W) × 207 (H) × 48 (D) mm		
Weight		approx. 550 g		
Accessories		Manual, Softcase, Charger, 5 rolls paper		

*TABLE I (Measurement range)

Thermocouple type	℃		°F	
	1℃ Range	0.1℃ Range	1°F Range	0.1°F Range
E	−200～ 800℃	−100.0 ～ 500.0℃	−328～1472°F	−148.0 ～ 932.0°F
K	−200～1200℃		−328～2192°F	
J	−200～1100℃		−328～2012°F	
T	−200～ 400℃	−100.0 ～ 400.0℃	−328～ 752°F	−148.0 ～ 752.0°F
R	0～1760℃		32～3200°F	

※Switches automatically to 1℃ resolution range when measured temperatures fall outside the 0.1℃ resolution range.

*TABLE II (Measurement accuracy)

Thermocouple type	℃			°F		
E, K, J, T	0.1℃ Range	0℃～	± (0.05% of reading + 0.2℃)	0.1°F Range	32°F～	± (0.05% of reading + 0.4°F)
		～0℃	± 0.5℃		～32°F	± 0.5°F
	1℃ Range	500℃～	± (0.1% of reading + 1℃)	1°F Range	932°F～	± (0.1% of reading + 2°F)
		～−100℃	± (0.5% of reading + 1℃)		～−148°F	± (0.5% of reading + 2°F)
R	1℃ Range		± (0.1% of reading + 3℃)	1°F Range		± (0.1% of reading + 6°F)

*TABLE III (Sampling rate and Battery life)

Interval	Sampling rate	Battery life
No printing mode	2times / second	approx. 40hours
3 seconds	2times / second	approx. 25hours
10 seconds	1time / 5seconds	approx. 45hours
30 seconds	1time / 5seconds	approx. 80hours

Interval	Sampling rate	Battery life
1 minute	1time / 10seconds	approx. 100hours
5 minutes	1time / minute	approx. 110hours
10 minutes	1time / minute	approx. 120hours
30 minutes	1time / minute	approx. 120hours
60 minutes	1time / minute	approx. 120hours

●Accessories

Soft case

Charger
NB-115-3P (for AC115V)
NB-230-3P-R (for AC230V)

Not CE-approval

Print paper

5 pcs/set

Model AM-8000 series

Compact Thermologger

Model AM-8000 series thermometers are compact handheld units that store measurement data in memory. Data held in memory can then be transferred to a PC via dedicated software for later analysis or other use.

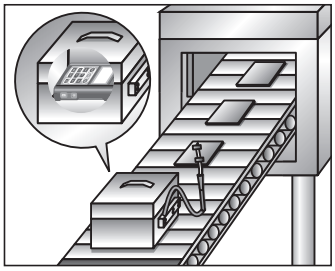
AM-8000模式系列
AM-8000模式系列产品是简便型温度数据记录器。
可以记忆储存测试数据并通过专用软件转送到电脑中进行数据处理。

AM-8000シリーズは、ハンディタイプの温度データロガーです。
計測データをメモリし専用ソフトにてパソコンへ転送することで、
データ処理が可能です。

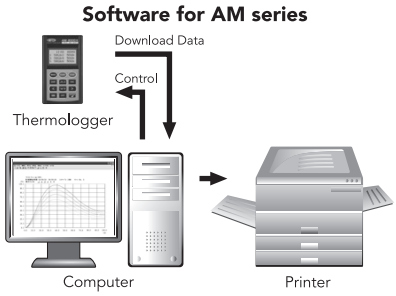
6ch

12ch

TB



AMS-850



Features

- **Interface**
  The link to the PC is by USB or RS-232C.
- **Number of inputs**
  6ch model (capable of storing 60,000 measurements) or 12ch model (capable of storing 120,000 measurements)
- **Input type**
  A multi-function temperature / voltage model is also available for simultaneous recording of temperature and voltage.
- **Interval**
  The high-speed model is capable of measuring at 100ms intervals.

*Except remote measurement.

TB-6002*

Heat-resistant box for 6ch model

Application limit : 300℃/20min

External dimensions :
320 (W) ×190 (H) ×250 (D) mm
(not including protrusions)

Weight : approx. 10kg

TB-6003-SP13*

Waterproof box for 6ch model

(For the container to ϕ98mm)

Application limit : 100℃/60min

External dimensions :
205 (W) ×155 (H) ×405 (D) mm
(not including protrusions)

Weight : approx. 8kg

* in Type denotes the type of thermocouple (E or K)

*The above products are sold separately. Please contact us for more information.

Software specifications

The software enables use of data on a PC.

- **Graph production**
- **Formatted document output**
- **csv file output**

Compatible OSs

Microsoft® Windows® XP (SP.3 or newer), Windows Vista®, Windows® 7 (for English)

*All PCs under the recommended environment are not guaranteed to work successfully with AMS-850.
*AMS-850 can be used only by the user that has a system administrative right (Administrator).
*AMS-850 does not support Mac OS.
*Microsoft® Windows® XP, Windows Vista®, Windows® 7 and Excel® are registered trademarks of Microsoft Corporation in the United States and other countries.
*Software is sold separately.

Function of AM-8000 series

Model		Interface		Number of inputs		Input type		Interval	
Type K	Type E	USB	RS-232C	6ch.	12ch.	Temp.	V	Normal	High speed
AM-8000K	AM-8000E	●		●		●		●	
AM-8001K	AM-8001E	●		●		●		●	●
AM-8050K	AM-8050E	●		●		●	●	●	
AM-8051K	AM-8051E	●		●		●	●	●	●
AM-8010K	AM-8010E	●			●	●		●	
AM-8011K	AM-8011E	●			●	●		●	●
AM-8060K	AM-8060E	●			●	●	●	●	
AM-8061K	AM-8061E	●			●	●	●	●	●
AM-8100K	AM-8100E		●	●		●		●	
AM-8101K	AM-8101E		●	●		●		●	●
AM-8150K	AM-8150E		●	●		●	●	●	
AM-8151K	AM-8151E		●	●		●	●	●	●
AM-8110K	AM-8110E		●		●	●		●	
AM-8111K	AM-8111E		●		●	●		●	●
AM-8160K	AM-8160E		●		●	●	●	●	
AM-8161K	AM-8161E		●		●	●	●	●	●

Specifications

6ch. model

Model	AM-8000	AM-8001	AM-8100	AM-8101	AM-8050	AM-8051	AM-8150	AM-8151
Input type	Temperature				Temperature / DC Voltage			
Measurement range	*TABLE I				Temperature : *TABLE I DC Voltage : ±19.999V			
Resolution	0.1℃ / 1℃ (fixed)				Temperature : 0.1℃ / 1℃ (fixed) DC Voltage : 0.001V			
Measurement accuracy	*TABLE II				Temperature : *TABLE II DC Voltage : ± (0.06% of reading + 0.02% of F/S)			
Memory capacity	60,000 data							
High-speed interval	1 sec.	0.1 sec.	1 sec.	0.1 sec.	1 sec.	0.1 sec.	1 sec.	0.1 sec.
Interface	USB1.1		RS-232C		USB1.1		RS-232C	
Dimensions / Weight	92 (W) × 155 (H) × 36 (D) mm [Protruded parts excluded] / approx. 380g [Including dry batteries]							

12ch. model

Model	AM-8010	AM-8011	AM-8110	AM-8111	AM-8060	AM-8061	AM-8160	AM-8161
Input type	Temperature				Temperature / DC Voltage			
Measurement range	*TABLE I				Temperature : *TABLE I DC Voltage : ±19.999V			
Resolution	0.1℃ / 1℃ (fixed)				Temperature : 0.1℃ / 1℃ (fixed) DC Voltage : 0.001V			
Measurement accuracy	*TABLE II				Temperature : *TABLE II DC Voltage : ± (0.06% of reading + 0.02% of F/S)			
Memory capacity	120,000 data							
High-speed interval	1 sec.	0.2 sec.	1 sec.	0.2 sec.	1 sec.	0.2 sec.	1 sec.	0.2 sec.
Interface	USB1.1		RS-232C		USB1.1		RS-232C	
Dimensions / Weight	96 (W) × 160 (H) × 60 (D) mm [Protruded parts excluded] / approx. 480g [Including dry batteries]							

Common specifications

Input connector	ANP connector (Miniature plug)	
Reference junction compensation accuracy	±0.3℃ at 25℃±10℃	
Temperature coefficient	± (0.01% / ℃) of measurement range except 25℃±10℃	
Time interval	Standard mode : 1 second to 99 minutes 59 seconds High-speed mode (6ch.model) : 0.10 seconds to 0.99 seconds High-speed mode (12ch.model) : 0.20 seconds to 0.99 seconds	In the case of remote measurement through a PC : 1 second to 99 minutes 59 seconds
Signal source resistance	Temperature : 500Ω or less (standard mode), 100Ω or less (high-speed mode) DC Voltage : Input impedance app. 2MΩ or less	
Safe excitation voltage	Between input pins on same channels : ±10V DC (temperature), ±30V DC (Voltage) Between input pins on adjacent channels : ±60V AC	
Linearlizer	Digital Linearlizer method (Compliant with IEC 60584-1 (1995))	
Interface	USB 1.1 MINI-B or RS-232C	
Display	Graphic liquid crystal display, 128×64 dots (55×27mm)	
Environment	Operation	0～40℃, 20～80%RH (Non condensing)
	Storage	−10～50℃, 10～90%RH (Non condensing)
Power supply	4 AA Alkaline batteries or AC-Adapter (Option accessories)	
Supplied accessories	4 AA Alkaline batteries, Test report, Manual, Softcase, Communications cable (USB or RS-232C)	
Optional accessories	AC-Adapter, Special data analysis software (AMS-850), Carrying case	
Compatible standards	CE Making, RoHS	

*TABLE I (Measurement range)

Type	1℃ Range	0.1℃ Range
E	−200～ 800℃	−100.0～500.0℃
K	−200～1370℃	
J	−200～1100℃	
T	−200～ 400℃	−100.0～400.0℃
R	0～1760℃	—

※Switches automatically to 1℃ resolution range when measured temperatures fall outside the 0.1℃ resolution range.

*TABLE II (Measurement accuracy)

Type	Resolution	Measurement range	Measurement accuracy
E, K, J, T	1℃	0℃～	± (0.1% of reading + 1℃)
		−100～−1℃	± (0.5% of reading + 1℃)
		−200～−101℃	± (1% of reading + 2℃)
	0.1℃	0.0℃～	± (0.1% of reading + 0.3℃)
		−100.0～−0.1℃	± 0.5℃
R	1℃	0℃～1760℃	± (0.1% of reading + 3℃)

Not including reference junction compensation accuracy, at 25℃±10℃

*TABLE III (Battery life)

Interval	0.1sec	1sec	10sec	10min
Battery life	approx. 20h	approx. 40h	approx. 80h	approx. 240h

※Note:When operated with AA Alkaline batteries at 25℃ typ.

●Supplied accessories

Soft case
SC-6
SC-12

Communication cable
AM-USB (for USB)

Communication cable
AM-RS9 (for RS-232C)

●Optional accessories

AC-Adaptor
A-115-200-HR (for AC115V)
A-220-200-HR-R (for AC220V)

Not CE-approval

Carrying case

Model HS series

Soldering Iron Thermometer

Model HS series thermometers designed for exclusive use with the CR series soldering iron tip temperature probes. The HS-30K measures temperatures only, while the HS-50K can measure temperature, resistance between soldering iron tip and ground, and leakage voltage.

HS模式系列
HS模式系列是烙铁头专用温度计，可直接搭配CR模式系列烙铁头温度探头测量烙铁头温度。
HS-30K能测量烙铁头温度，HS-50K能测量烙铁头温度，烙铁头与地线之间的电阻与漏电压。

HSシリーズは、コテ先用温度センサ CRシリーズ専用の温度計測器です。
HS-30Kは温度、HS-50Kは温度・コテ先アース間抵抗・リーク電圧の計測ができます。

HS-30K
Temperature probe sold separately.

HS-50K
Temperature probe sold separately.

※Leakage voltage and the resistance between soldering iron tip and ground can be measured only when using a three-wire soldering iron with temperature control capability.
※烙铁头与地线之间的电阻与漏电压，仅可以测定带有三线式温度调节功能的烙铁。
※コテ先アース間抵抗とリーク電圧は、三線式の温度調節機能付きはんだコテのみ測定可能です。

Specifications

Model		HS-30K	HS-50K
Display		LCD	LED
Input type		Temperature (Thermocouple : Type K)	Temperature (Thermocouple : Type K) Resistance (between the iron ahead ground) leak electric voltage
Measurement range		0～500℃	Temperature : 0～500℃ Resistance (between the iron ahead ground) : 0.0～99.9Ω leak electric voltage : 0.0～99.9mV (RMS)
Resolution		1℃	Temperature : 1℃ Resistance (between the iron ahead ground) : 0.1Ω leak electric voltage : 0.1mV
Measurement accuracy		±(0.3% of reading +1)℃	Temperature : ± (0.1% of reading +1)℃ Resistance (between the iron ahead ground) : ± (4% of reading + 0.3) Ω leak electric voltage : ± (3% of reading + 0.3) mV
Reference junction compensation accuracy		±0.5℃ (at 23℃±10℃)	±0.2℃ (at 25℃±10℃)
Temperature coefficient		± (0.03% /℃) of measurement range except 23℃±10℃	± (0.01% /℃) of measurement range except 25℃±10℃
Environmental limit	Operation	10～40℃, 0～85%RH (Without dew)	0～40℃, 0～85%RH (Without dew)
	Storage	0～50℃, 0～85%RH (Without dew)	−20～40℃, 0～85%RH (Without dew)
Linearlizer		Analog linearlizer method (Compliant with IEC 60584-1 (1995))	Digital linearlizer method (Compliant with IEC 60584-1 (1995))
Power supply		4" AA" (LR6) Alkali Batteries	AC 100V～240V
Battery Life		approx. 180 h	—
Dimensions		152 (W) × 45 (H) × 80 (D) mm	180 (W) × 55 (H) × 150 (D) mm
Weight		approx. 460 g	approx. 950 g
Accessories		Manual, 4 Batteries	Manual, Spare fuse, Power supply cord, Ground cord

●Exclusive probes

	CR-31K	CR-32K
Model	2 pieces set	2 pieces set
Thermocouple type	Type K	
Max. temp.	500℃	
Tolerance	±4℃ (at 300℃)	
Diameter of the supporting iron future	Less than ϕ1.5mm	ϕ1.5mm～ϕ4mm

Model ACS II series

Temperature Calibration System

Model ACSII series products are temperature calibration systems for surface temperature and internal temperature measuring devices. Temperatures can be set across a wide range, from room temperature to 500℃. These calibration systems are designed for calibration or to check temperature measuring probes.

ACSⅡ模式系列
ACSⅡ模式系列产品是表面温度、内部温度的标准校正器。
从室温到500℃之间的温度可以自由设定，可用于温度感应器的校正、检测等用途。

ACS II シリーズは、表面温度、内部温度の基準校正器です。
室温から500℃まで、自由に温度を設定できます。温度センサの校正、チェックなどにご使用ください。

ACSII-1000

For Surface Temperature Max. 300℃

※Please specify a power supply voltage when ordering (choose from 100 VAC, 115 VAC, or 230 VAC).

ACSII-2000

For Surface Temperature Max. 500℃

Specifications

OVERALL ACCURACY

Model		ACSII-1000	ACSII-2000	ACSII-3000	ACSII-4000	
Calibration object		Surface temperature	Surface temperature	Internal temperature	Surface temperature	Internal temperature
Range	Rt～100℃	+0.5 / −0.7 ℃	+0.5 / −0.7 ℃	±0.26℃	+0.4 / −0.6 ℃	±0.26℃
	100～200℃	+0.5 / −1.1 ℃	+0.5 / −1.1 ℃	±0.32℃	+0.3 / −0.9 ℃	±0.32℃
	200～300℃	+0.5 / −1.5 ℃	+0.5 / −1.5 ℃	±0.37℃	+0.1 / −1.1 ℃	±0.37℃
	300～400℃	—	+0.4 / −2.0 ℃	±0.43℃	+0.2 / −1.5 ℃	±0.43℃
	400～500℃	—	−0.1 / −2.9 ℃	±0.48℃	−0.9 / −2.2 ℃	±0.48℃

CONTROL UNIT

Model		ACSII-1000	ACSII-2000	ACSII-3000	ACSII-4000
Surface range		Rt～300℃	Rt～500℃	—	Rt～500℃
Internal range		—	—	Rt～500℃	Rt～500℃
Control principle		PID Auto-Tuning Control			
Control	Input	Pt 100Ω, ϕ3.2, Class A			
	Accuracy	±(0.2% of reading)℃			
	Display	8mm high LED display			
Reference sensor	Input	—		Pt 100Ω, ϕ4.8, Class A	
	Accuracy	—		±(0.05% of reading +0.05)℃	
	Display	—		12.5mm high LED display	
Power consumption		approx. 160W	approx. 700W	approx. 1600W	approx. 1600W
Dimensions W×H×D (mm)		320×177×350		430×177×350	
Weight		approx. 4.5kg		approx. 5.0kg	

CALIBRATION UNIT

Model	ACSII-1000	ACSII-2000	ACSII-3000	ACSII-4000
Testing surface	ϕ78mm	ϕ100mm	—	□150mm
Test point	—	—	8 holes based on specified dimension	
Temp. distribution	±0.1℃			
Heater	150W	600W	1500W	1500W
Dimensions W×H×D (mm)	260×130×260	390×230×360	450×405×400	
Weight	approx. 7kg	approx. 20kg	approx. 70kg	
Overheating prevention mechanism	Bimetal breaker			
Heating time	Rt→150℃ 20min. Rt→300℃ 40min.	Rt→250℃ 20min. Rt→500℃ 50min.	Rt→250℃ 60min. Rt→500℃ 150min.	
Cooling time	300→150℃ 20min. 150→ 50℃ 40min.	500→250℃ 30min. 250→ 50℃ 70min.	500→250℃ 220min. 250→100℃ 430min.	

Model FL series

Fiber Optic Thermometer

The products in the FL Series can measure temperatures in environments subject to high-frequency waves, microwaves, or high voltages-areas where electric thermometers such as thermocouples, platinum resistance temperature detectors, and thermistors are typically ineffective.

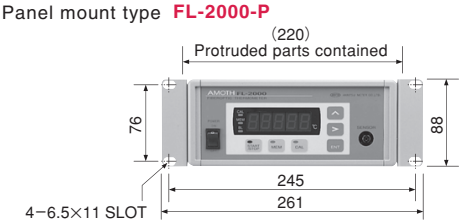
FL模式系列
荧光式光纤温度计FL模式系列可以测量金属测棒温度计不能测量的高频率，微波及高电压等特殊环境的温度。

蛍光式光ファイバー温度計 FLシリーズは、熱電対やPt、サーミスタなどの電気式温度計では計測困難な高周波・マイクロ波または高電圧などの過酷な環境下において接触式で温度計測が可能です。

1ch. model FL-2000

Stand type FL-2000

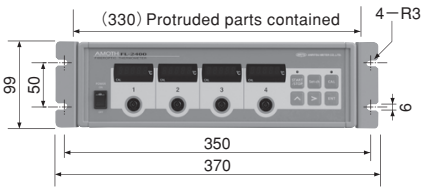
Panel mount type FL-2000-P



4ch. model FL-2400

Stand type FL-2400

Panel mount type FL-2400-P



Features

- Capable of measurements in environments subject to high-frequency waves or high voltages.
- A fiber optic thermometer offering a wide measurement range.
- Analog output capability allows use for machine temperature control.
- Measurement data can be imported into a PC using software* bundled with the thermometer.

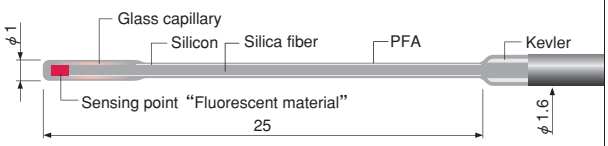
- 可在高频率，高电压的环境下测量。
- 此荧光式光纤温度计可测量广域温度。
- 信号输出功能可用于设备的温度控制。
- 附带的PC软件可采集测量数据。

*for Microsoft® Windows® XP (SP.3 or newer), Windows Vista®, Windows® 7 (for English)
*All PCs under the recommended environment are not guaranteed to work successfully with AMS-850.
*AMS-850 can be used only by the user that has a system administrative right (Administrator).
*AMS-850 does not support Mac OS.
*Microsoft® Windows® XP, Windows Vista®, Windows® 7 and Excel® are registered trademarks of Microsoft Corporation in the United States and other countries.

Fiber probes

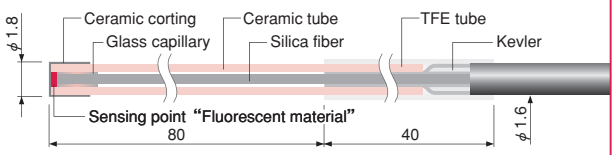
FS100−*M General-purpose type — temp. range : −190℃～260℃

Applications involving microwaves, high magnetic fields, certain food preparation processes, power lines, and electric circuit components



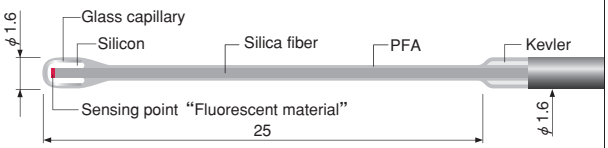
FS400−*M High temperature type — temp. range : 20℃～400℃

Various materials, excluding liquids, in semiconductor manufacturing equipment or microwave heating devices



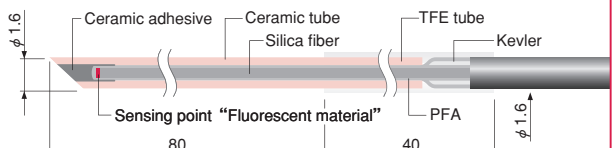
FS200−*M Chemical-resistant type — temp. range : −30℃～200℃

Oils or chemicals



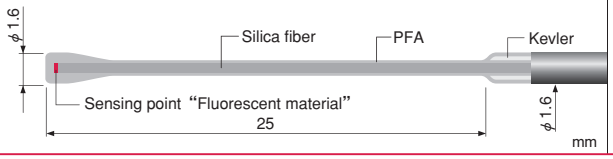
FS500−*M Needle type — temp. range : −60℃～260℃

Semisolid substances, e.g., food



FS300−*M Light-resistant type — temp. range : −190℃～260℃

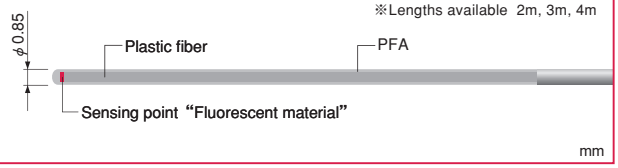
Measurements performed in laser beam, plasma, or other intense light



FS600−*M Plastic type — temp. range : 0℃～80℃

Animal tests using hyperthermia equipment or MRI or NMR systems

※Lengths available 2m, 3m, 4m



Replace the asterisk (*) in the model number with a cable length in meters.

Specifications

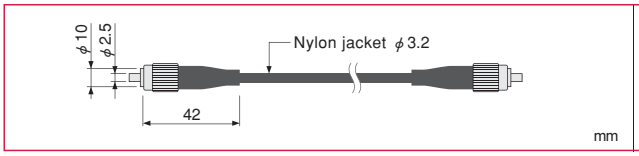
Type		FL-2000	FL-2400
Input point		1	4
Measurement range		−195.0～450.0℃	
Resolution		0.1℃	
Accuracy	Calibration not executed	−195.0～399.9℃ : ±2℃, 400.0～450.0℃ : ±5℃	
	Calibration executed	±0.5℃ (within ±50℃ of calibration point) (at an ambient temp. of 25℃±5℃)	
Temperature coefficient		± (0.01% of F.S. / ℃) within operating temperature	
Operating environment		Temperature : 0～40℃, Humidity : 15～80%RH (non-condensing)	
Storage environment		Temperature : −10～50℃, Humidity : 10～85%RH (non-condensing)	
Display		Height of character : 15mm, RED LED	Height of character : 8mm, RED LED
Display update		1 s	
Light source		Blue LED	
Power supply	AC power	Please specify a power supply voltage when ordering (choose from 100 VAC, 115 VAC, or 230 VAC).	
	Dry battery	six AA-size alkaline batteries	—
Power consumption		approx. 12 VA	approx. 40 VA
Memory		Up to 15,000 data, one second interval (synchronized with display)	No memory
Interface		RS-232C Transfer rate : 9600 bps Data formation : 7 bit, odd parity, 1 stop bit	
Calibration		One-point calibration (using real temperature within a measured area)	
Analog output	Output rate	10mV/℃	
	Resolution	1mV	
	Accuracy	± (0.2% of F.S.) at an ambient temperature of 25℃ ±5℃	
	Temperature coefficient	± (0.01% of F.S. / ℃)	
External dimensions		210 (W) × 88 (H) × 230 (D) mm Protruded parts excluded	320 (W) × 99 (H) × 280 (D) mm Protruded parts excluded
Weight		approx. 3 kg	approx. 5 kg
Supplied accessories		Power cable (two-wire plug attached) × 1 Fuse (2A mini fuse) × 1 Analog output cable × 1 Communication cable × 1 PC software AMS-850 (CD ROM) × 1 User's manual (main unit and software) × 1	Power cable (two-wire plug attached) × 1 Fuse (2A mini fuse) × 1 Analog output cable × 4 Communication cable × 1 Conversion cable (RS-232C→USB) PC software AMS-850 (CD ROM) × 1 User's manual (main unit and software) × 1

●Optional accessories

Extension cable

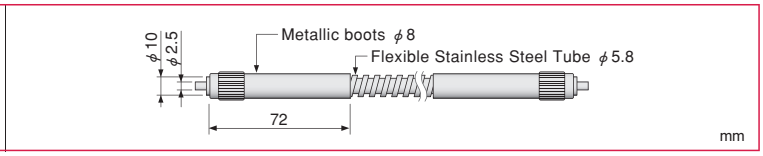
FK1−∗M

General-purpose extension cable for normal use.



FK2−∗M

Heavy-duty extension cable forrough environments.

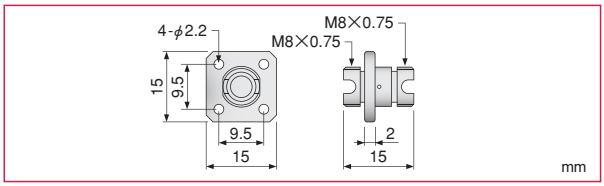


Replace the asterisk (∗) in the model number with a cable length in meters.
The extension cable cannot be used with FS600−∗M (plastic fiber).

Optical adapter

FA1

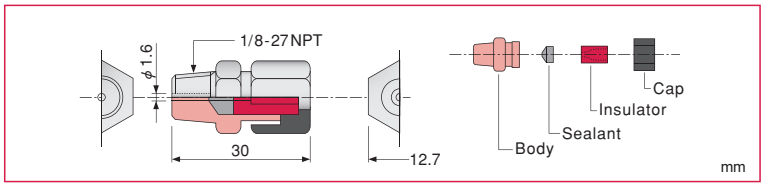
Con connect a probe to an extension cable.



Compression fitting

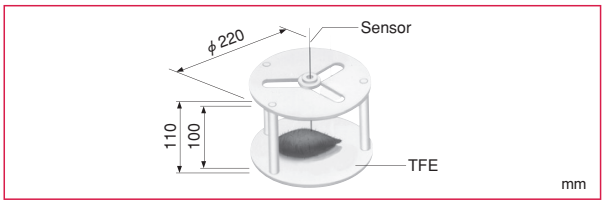
FN1−T (sealant material : TFE) **FN1−V** (sealant material : Viton)

Compression fitting used to insert probe into a vacuum device or pressure vessel.



Pressure rating	1.33×10⁻⁴Pa～11.0 MPa at 20℃ using stainless steel rod

Device for the microwave oven with a turntable



Various options can be tailored to meet special requirements.
Please contact us for more information.

Model R-100 series
Infrared Thermometer
Model AR-6500 series
Contact & Non-Contact Thermometer

CE

Model R-100 series and AR-6500 series infrared thermometers can measure temperatures without contacting the measurement target. Model AR-6500 series can also measure temperatures using a contact-type probe.

R-100模式系列/AR-6500模式系列
R-100模式系列产品以及AR-6500模式系列产品都是非触摸式测试温度的放射温度计。此外，AR-6500模式系列产品同时也可以进行接触式温度测试。

R-100シリーズおよびAR-6500シリーズは、非接触で温度測定が可能な放射温度計です。
またAR-6500シリーズは、接触式温度センサでの温度測定も可能です。

R-100 Series
Handy type

Features

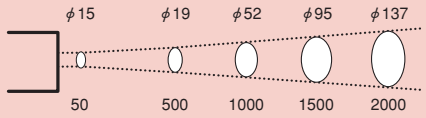
- Broad measurement range
- Small measurement area
- Wide range of emissivity settings
- Automatic emissivity setting using contact-type probe (For AR-6500 series only)

Specifications

Model		AR-6500	AR-6501	AR-6500-H	AR-6501-H	R-100	R-150	R-160
CE approval		CE	CE	CE	CE	—	—	—
Measurement range		−50～500℃		0～1200℃		−50～500℃		0～1200℃
Resolution		0.1℃		1℃		1℃	0.1℃	1℃
Laser aiming		●	●	●	●	—	●	●
Contact mode		●	●	●	●	—	—	—
Measurement accuracy		*TABLE I		*TABLE II		*TABLE I		*TABLE II
Reference junction compensation accuracy		±0.2℃ at 25±10℃						
Temperature coefficient		±0.01% of full scale ℃						
Power supply		Ni-Cd rechargeable battery (4AA)						
Battery life		30 hours～ (10 hours when laser is used continuously)						
Environmental limit	Operation	0～40℃, 0～80%RH (Without dew)						
	Storage	−20～50℃, 0～85%RH (Without dew)						
Analog output (*Table III)		—	1mV/℃	—	1mV/℃	—	—	—
Weight		approx. 400g						
Accessories		Manual, Soft case, Lens cap, Charger						
		—	Output cable	—	Output cable	—	—	—

*TABLE I

AR-6500, AR-6501, R-100, R-150 — Field of view

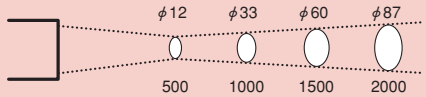


unit : mm

Non-contact	250～500℃	± (0.8% of reading＋1digit)
	0～250℃	± (2℃＋1digit)
	−50～ 0℃	± (3℃＋1digit)
Contact	−50～500℃	± (0.05% of reading＋0.1℃)± 1digit

*TABLE II

AR-6500-H, AR-6501-H, R-160 — Field of view



unit : mm

Non-contact	600～1200℃	± (0.5% of reading＋1digit)
	250～ 600℃	± (3℃＋1digit)
	0～ 250℃	± (4℃＋1digit)
Contact	0～1200℃	± (0.1% of reading＋1digit)

*TABLE III

Output rate	1mV / ℃
Accuracy	± (0.15% of F/S+1mV) : at 25±5℃ ± (0.15% of F/S+1mV) ±0.01% of F/S : except 25℃±5℃

Non-contact mode

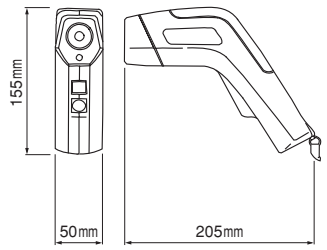
Detector	Thermopile
Spectral response	8～14μm
Repeatability	± (0.4% of reading＋1digit)
Response time	500ms (95%)
A-constant adjustment	0.10～2.00 (0.01 step)
Laser aiming	L2 models meet ICE Class2

Contact mode

Input	Thermocouple Type : K
Sampling time	500ms

Dimensions

Handy type (AR-6500 series)



●Accessories

Charger
B-115/230-5.5
(for AC115V or 230V)

Not CE-approval