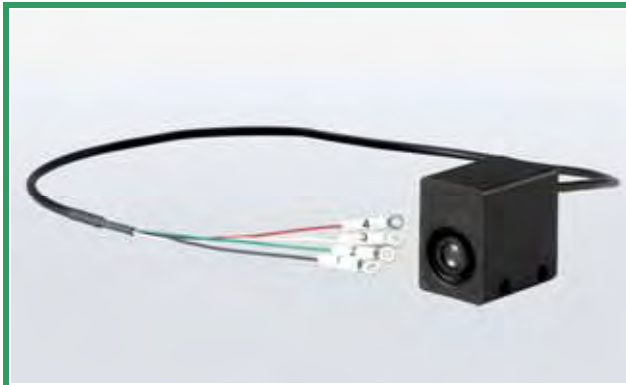


# TMH91 SERIES

- \* **Only** thermometer's **sensor head**, measurement temperature is possible.
- \* Temp. range : 0 ~ 500 (2types) & 0 ~ 1350 (1type).
- \* High speed response **30msec.**(analog output type only).
- \* The setting emissivity is possible at sensor head.
- \* Small & Lightweight by resin housing.
- \* Low temp. type is available to use as temperature sensor too.
- \* High temp. type is very wide measurement range.



Output is 2 types : **ANALOG** & **RS232C**

**[Analog output]**

Changeable to 4 ~ 20mA, 0 ~ 20mA, 0 ~ 1V, mV/ ,

**Setting emissivity is possible on sensor head without external parameter setter.**

**[RS232C]**

To program the communication software for the setting by PC (Personal Computer) on your side is possible.

Power supply : DC4.7 ~ 27V, 0.1Amax.

When you need a parameter setter or display module, please use the following setters.

Thermometer connectable type;-  
**RS232C** only



## Indicating Setter TMC9-

- \* Power supply : Selectable  
[AC85 ~ 115V] or [DC10 ~ 27V]
- \* Alarm output 1point as standard
- \* Analog output is option (Selectable in 4 types)

Thermometer connectable type;-  
**RS232C** & **Analog**



## Parameter Setter PWC1

- \* Handy type
- \* AA Battery x 4
- \* With communication cable 1.8m as accessory between thermometer and PWC1

Thermometer connectable type;-  
**RS232C** & **Analog**



## Parameter Setting Set PWZ1-SUP

Parameter setting set;-

- \* Parameter writer software (PWS1)
- \* USB-RS232C converter (PWU1-U)
- \* Parameter setting cable (PWB1-PMP)
- \* **Windows XP or Windows2000 in Japanese version is necessary for use of this parameter setting set.**

## Specifications of Thermometer

Type	Low Temp. type		High Temp. type	
Model	TMH91-L500N5S3	TMH91-L500N15S10	TMH91-L1350N50M10	
Measuring Range( )				
	Measuring distance	50mm	150mm	500mm
	Spot size	φ3mm	φ10mm	φ10mm
	Sighting	LED		
Cable length	2m			
Lenz size	φ10mm		φ25mm	
Spectral Response	6.5 ~ 13μm		6.5 ~ 10.5μm	
Detecting Element	Thermopile			
Warm up Time	1 minute			
Accuracy	1) 0 ~ 300 : ±3 2) 300 ~ : Measured value ±1%			
Repeatability (*1)	±0.5		±3	
Measuring resolution	less than 0.5		less than 1	
Response time	Analog output : 0.03 ~ 600sec changeable (0 ~ 95% analog output) RS232C : 0.03 ~ 600sec changeable (Actual speed is changing by receiver side and communications speed. ) [These response time is the data at "smoothing time of 0.05sec".] Changeable by smooting function.			
Emissivity	Setting range 0.050 ~ 1.000 (Setting resolution 0.001) Guaranteed range 0.3 ~ 1.0 With Reflex calibration function	[Analog output type only] Emissivity volume (Volume angle : 210°Emissivity : Left-0.050, Right-1.000) Function of setting by external analog (Emissivity 1.000 ~ 0.050 is possible by current input 0 ~ -0.14mA.)		
Output	Selectable Analog output or RS232C (Indicating Setter TMC9- : only RS232C) At the select Analog output (*3)	Changeable to 4 ~ 20mA, 0 ~ 20mA, 0 ~ 1V, mV/ , (Options : 0 ~ 5V, 0 ~ 10V) ·Alarm output 1 point ·Open drain : DC27V, 0.2A		
Ambient temp.	0 ~ 50			
Ambient humidy	30 ~ 85% RH (without dew drop)			
Supply voltage(*2)	DC4.7 ~ 27V, 0.1Amax.			

(\*1) at Ambient Temp. 23±5 , emissivity 1.0, smoothing time of 0.05sec

(\*2) Lower limit voltage is when analog output(0 ~ 1V) or RS232C output at the cable length 2m

(\*3) With RS232C output jack as standard for communication with parameter.

The following analog output error is added to repeatability

	Output effective range	Analog output error
0 ~ 1V	More than 30mV	±1.5mV
mV/	More than 30mV(30 )	±1.5mV
0 ~ 20mA	More than 0.2mA	±0.02mA
4 ~ 20mA	More than 4.0mA	±0.02mA

### Specifications of communication

RS232C	Output swing width : about ±4V
Baud rate :	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps

### Operation of emissivity volume

Off the rubber cap from hole of this volume.  
Turn the volume by screw driver  
Adjust your target temp. with checking the analog output.

## Specifications of Indicating Setter

Model	TMC9-M	TMC9-E	TMC9-D
Supply voltage	AC85 ~ 115V, less than 4VA	DC10 ~ 27V, less than 12VA	
		Non AC Adaptor	With AC Adaptor (AC100V)
Form	Panel mount 48 x 48 (mm)		Desk top type
Emissivity	Guaranteed range 0.3 ~ 1.0 (With Reflex calibration function)		
	Setting range 0.050 ~ 1.000(Setting resolution 0.001)		
	Function of setting by external analog input is equipped.(0 ~ 5V corresponds to emissivity 0 ~ 1.0) <b>Option</b>		
Alarm output	Standard 1 point (2 points available as potion)		
	Hysteresis setting width:Temperature range 0 ~ ±5%, Resolution 0.1% Photo coupler DC30V, 0.2A max.		
	Relay contact - "Alarm output1 : AC125V, 0.3A max." "Alarm output2 : AC250V, 1A max." <b>Option</b>		
Analog output <b>Option</b>	Changeable to 4 ~ 20mA, 0 ~ 20mA, 0 ~ 1V, mV/ , Optional output : 0 ~ 5V, 0 ~ 10V Enlargement to 2 points is possible. With Scaling function		
Peak hold	Reset function (selection) Time : 0.01 ~ 10sec changeable		Discharge : time 0.01 ~ 10sec, Level 0.2 ~ 1.00
	External signal : dry contact or open collector <b>Option</b>		
Sample hold <b>Option</b>	External timing signal input: dry contact or open collector		
Sensor calibration function	Span : 0.50 ~ 1.50 Zero : -50.0 ~ +50.0 (°F)		
Selection of indication measuring mode	Upper display : temp./alarmH/alarmL/blank Lower display : temp. unit/emssivity/alarmH/alarmL/blank		
Self-diagnosis	Internal supply voltage, Temperature converter abnormality		
Display resolution	Changeable to 1 or 0.1		
Indication unit	Changeable to or °F		
Ambient temp.	0 ~ 50		
Ambient humidy	30 ~ 85% RH (without dew drop)		

# Specifications of Optional functions

## Output options of Sensor head



### Types & functions of voltage output

<b>A</b>	Analog output 0 ~ 1V, mV/ , 0 ~ 20mA, 4 ~ 20mA switchable
<b>F</b>	Analog output 0 ~ 5V, mV/ , 0 ~ 20mA, 4 ~ 20mA switchable
<b>T</b>	Analog output 0 ~ 10V, mV/ , 0 ~ 20mA, 4 ~ 20mA switchable
<b>R</b>	RS232C output (Output swing width about ±4V) *At the connection with Indicating Setter, output is RS232C only.

- \* At the Analog output type, our setting value is 4 ~ 20mA as standard.
- \* When the voltage output from analog output type, please set the resistor and capacitor as standard accessory.
- \* Analog output is changeable in 4 ~ 20mA, 0 ~ 20mA, above voltage, mV/ .
- \* Please change the parameters of analog output by Parameter Setter(PWC1) or Parameter Setting Set(PWZ1-SUP).
- \* Also, please change the internal/external setting of emissivity by PWC1 or PWZ1-SUP. (Parameter Setter(PWC1) & Parameter Setting Set(PWZ1-SUP) are selling separately.)

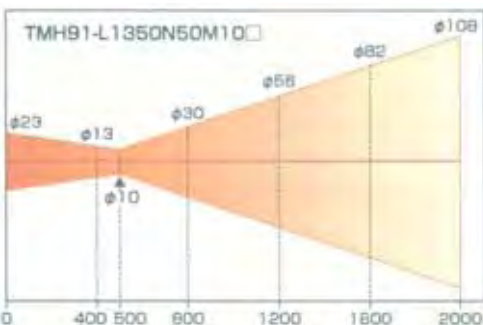
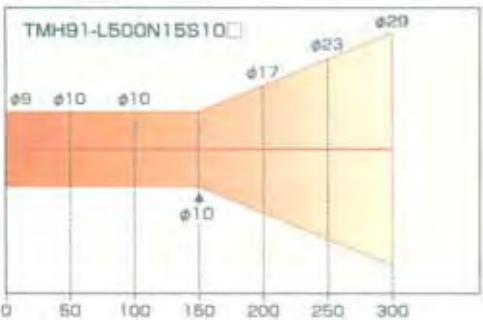
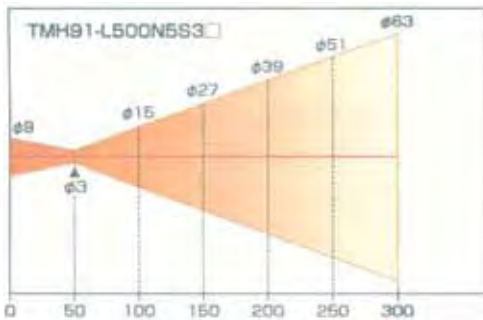
## Output options of Indicating Setter



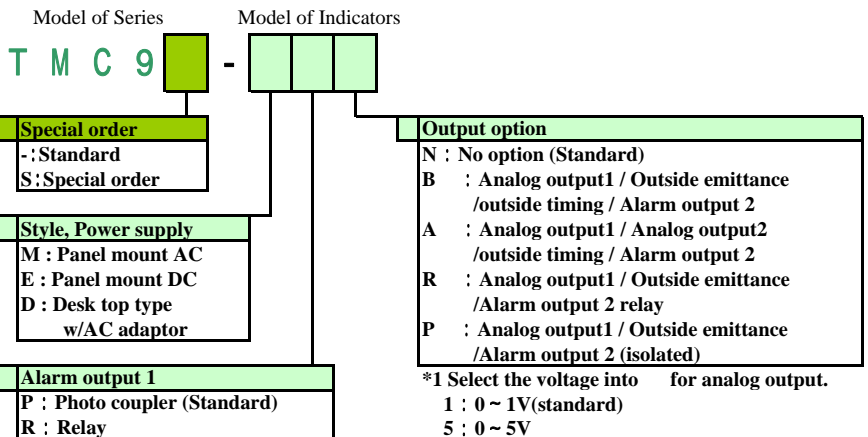
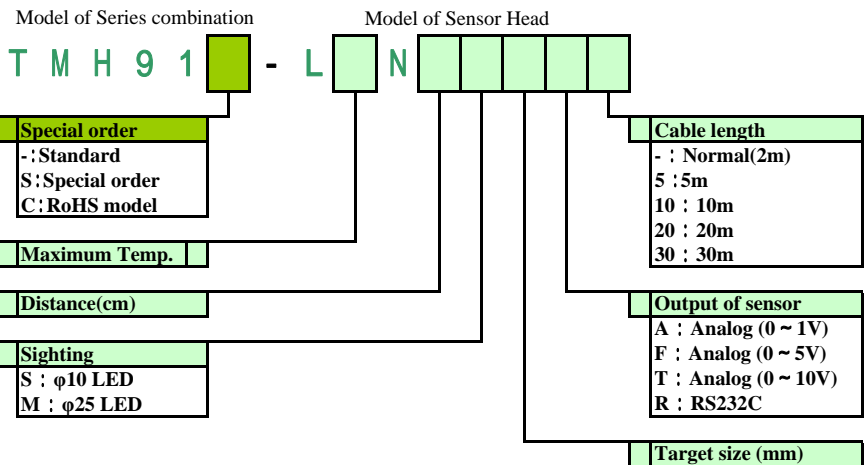
	N (Nomal)	B (*1)	A (*1)	R (*1)	P (*1)
Analog output 1 (*2)	-				
Analog output 2 (*2) (The voltage same as output 1)	-	-		-	-
Alarm output 1 (*3)					
Photo coupler (isolated) Alarm output 2	-	-	-	-	-
Photo coupler (isolated) Alarm output 2	-	-	-	-	-
Photo coupler (non-isolated) Alarm output 2 (Relay)	-	-	-	-	-
The external emissivity input	-	-	-	-	-
The external timing input	-	-	-	-	-

- (\*1) Please select the following voltage into .  
1 : 0 ~ 1V(Standard) 5 : 0 ~ 5V 0 : 0 ~ 10V
- (\*2) Analog output is changeable in 4 ~ 20mA, 0 ~ 20mA, above voltage, mV/ .  
Our standard setting is 4 ~ 20mA.
- (\*3) Relay output is also selectable as option.

## Chart of Optical Path



## Order Information

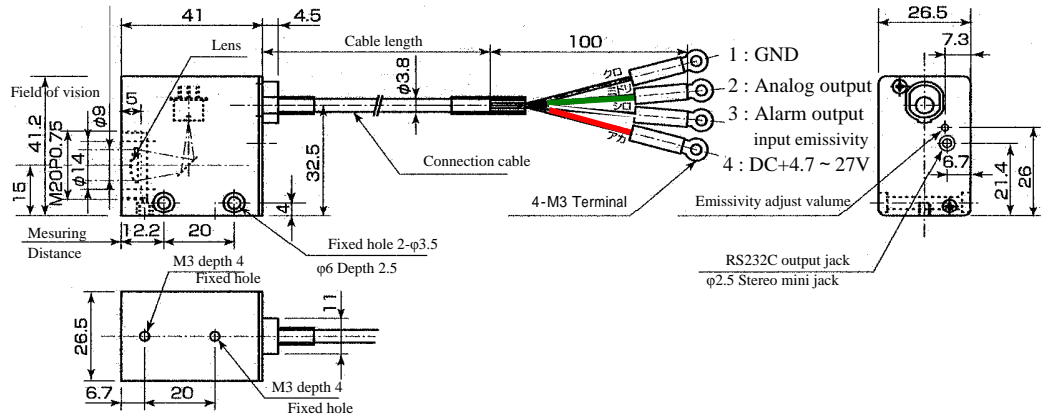


# Sensor Head

## Low Temp. Type

TMH91-L500

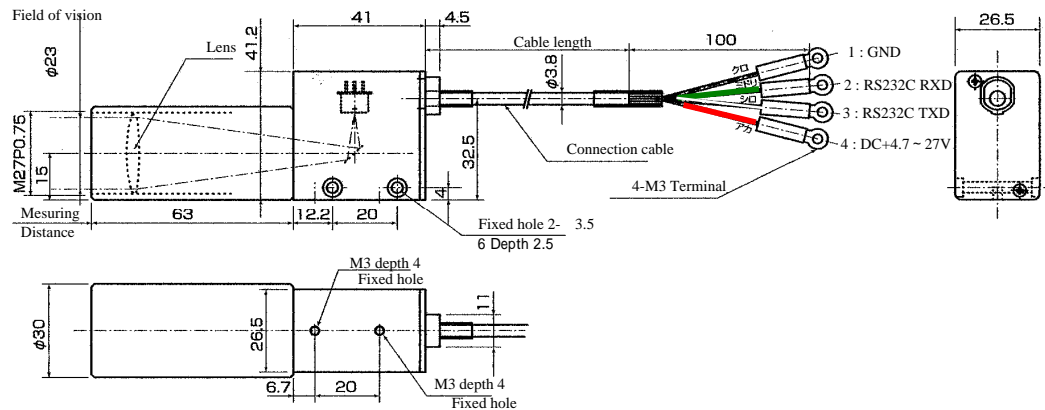
(  
Analog output



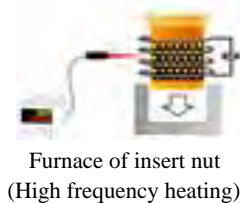
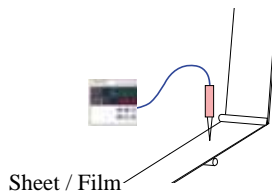
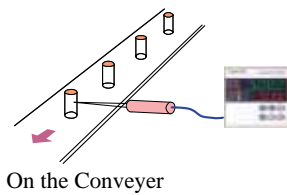
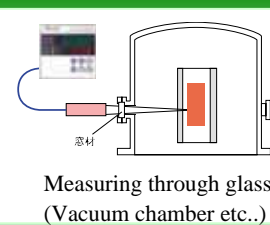
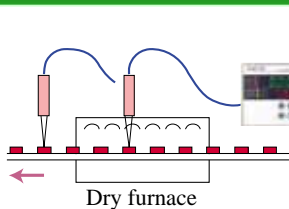
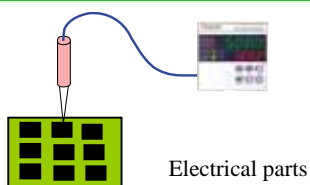
## High Temp. Type

TMH91-L1350

( 25  
RS232C



## Applications



For improving the products, Information in this catalog may be subject to change without notice

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