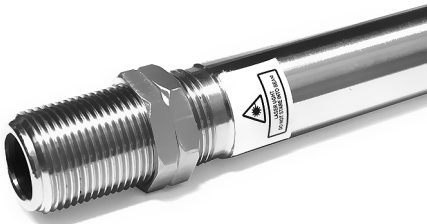


NS10P
Infrared Sensor



Operator's Manual

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*Note: Read the manual carefully before the initial start-up. The producer reserves the right to change the herein described specifications in case of technical advance of the product.

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4. Technical Data

4.1 Measurement Specifications

Table with 4 columns: Model, Temperature Range, Spectral Response, D:S (90%)

Response Time 5ms (95%)
Accuracy*1 ±(0.5% of reading+2°C)
Repeatability*1 ±(0.3% of reading+1°C)
Emissivity 0.100 ~ 1.000

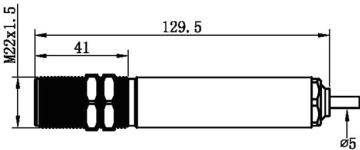
*1 At 23±5°C, emissivity H1/H2/H3=1.00

4.2 Electrical Specifications

Power Supply 24 VDC ±20%, < 100 mA
Signal Output 4 ~20mA
Digital Communication RS485 (2-wire)
Max. loop resistance 500Ω

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6. Dimensions



7. Installation

7.1 Mechanical Installation

The NS10P has rugged stainless steel 304 housing, comes with a standard 2 m cable and 2 mounting nuts. You can mount the sensor in brackets or cutouts of your own design. For easy mounting and aligning the sensor to the measured object, a fixed or adjustable mounting bracket is available. For exact measurement of the object temperature the sensor must be aligned correctly onto the object. Mount the sensor so the measured spot is the same or smaller than the target.

-8-

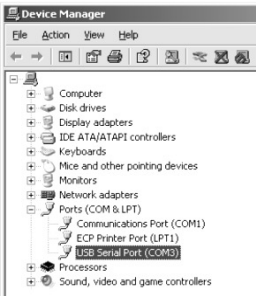
11. Software

11.1 Install driver for USB/RS485 Converter :

Please install the driver for USB to RS485 converter first. Windows will randomly assign an unused COM port number to the adapter.

To find out which COM-Port number your computer set, open the device manager (Start – Settings – Control Panel – System – Hardware – Device Manager).

In the category "Ports (COM & LPT)" you can find the "USB Serial Port" (only if your converter is plugged in). In parenthesis the COM Port number is shown.



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4.3 General Specification

Environmental Rating IP 65 (NEMA-4)
Ambient Temperature 0°C~70°C
Storage Temperature -20°C ~ 80°C
Relative Humidity 10% ~ 95%
Cable Temperature -20°C ~ 80°C

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7.2 Wiring

red----- 24VDC power (+)
black----- 24VDC power (-)
white----- 4~20mA signal (+)
green----- 4~20mA signal (-)
yellow---- RS485 (T+/A)
grey----- RS485 (T-/ B)
blue -----Laser Trigger
bare----- -Shield Ground

8. Laser Sighting

When connected to the power supply, the laser sighting will turns on for two minutes then shut down automatically. To restart the laser, the user need to turn 24VDC power off and then turn on the power again, or the laser can be activated via a trigger. By shorting the Laser Trigger (blue) and power ground - (black). That can be done with a switch or push button which the user installed on site. At ambient temperature > 50°C, the laser will be switched off automatically.

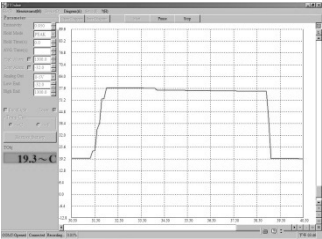
-9-

11.2 STonline Software

1) Please connect the sensor to your PC and start STonline software, and open at first [Menu: Setup(S)\Interface Settings], to choose the correct Com port and set the Baud Rate to 9600.

After the unit connected to your personal computer, and the STonline software is started successfully, the communication has been established. The status line will be displayed in the left bottom: active COM port and successfully communication with the connected sensor. And the target temperature will show on the left in digital form.

You can set the sensor, download the logger data and recording temperature curve through the software.



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1. Description

11 Introduction

The NS10P is a non-contact infrared temperature sensor. The electronics are protected by a rugged IP65/NEMA 4 stainless steel (SS304) housing. They calculate the surface temperature based on the emitted infrared energy of objects and convert the energy into temperature signal.

12 Scope of Delivery

- NS10P
- Mounting nut x 2
- 2m connection cable (standard)
- User manual

13 Maintenance

Keep the lens clean at all times. Any foreign matter on the lens would affect measurement accuracy. Blow off loose particles using clean compressed air. The lens surface can be cleaned with a soft, humid tissue moistened with water or a water based glass cleaner. Never use cleaning compounds which contain solvents for the lens.

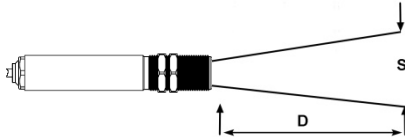
14 Electrical Interference

Keep away from strong EMF (electromagnetic fields). Avoid static electricity, arc welders, and induction heaters. Avoid abrupt changes of the ambient temperature. To avoid ground loops, make sure that only one point is earth grounded.

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5. Optical Charts

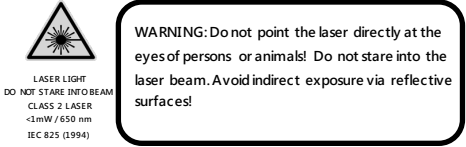
The optical diagrams indicate the target spot diameter at any given distance between the target object and the sensing head. The spot size will change in longer distance corresponding to the following drawing. In order to prevent measuring errors the object must be as least as big as the spot size. And make sure to keep the optical path clear of any obstracles.



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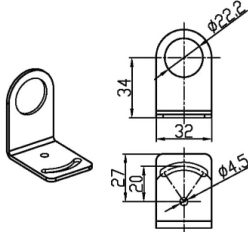
9. Aiming and Focusing

Position the sensor so the laser beam hits in the center of the target and gently move it around until the temperature signal reads the highest. Hold the sensor in place and secure the mounting base. Focusing is complete.



10. Accessories

10.1 Fixed Mounting Bracket



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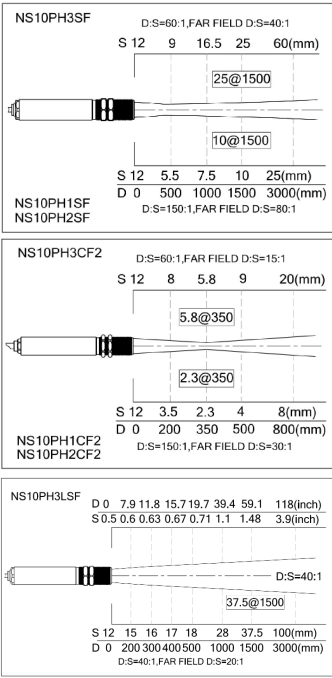
2. Basics of Infrared thermometry

Infrared thermometer is an optoelectronic sensor. Any object of a temperature above absolute zero (-273 °C) emits electromagnetic radiation. Infrared thermometer calculates the surface temperature on the basis of the emitted infrared radiation from the object. By determining its radiation intensity the temperature of an object can thereby be determined in a non-contact way.

3. Factory Defaults

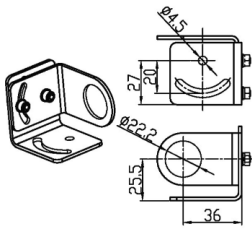
Table with 2 columns: Parameter, Value

-3-

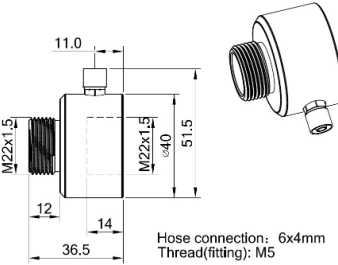


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10.2 Adjustable Mounting Bracket



10.3 Air Purge Collar



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12. Warranty

Each product passes through a quality process. Nevertheless, if a failure occurs please contact the customer service at once. The period of warranty starts from the date of delivery of the product to the customer and shall cover a period of 12 months. This warranty shall not apply to fuses, batteries, or any product that has been subject to misuse, neglect, accident, or abnormal conditions of operation.

The manufacturer shall not be liable for any special, incidental or consequential damages, whether in contract, tort, or otherwise. If a failure occurs during the warranty period, the product will be replaced, calibrated or repaired without further charges. The freight costs will be paid by the sender. The manufacturer reserves the right to exchange components of the product instead of repairing it.

If the failure results from misuse, neglect, accident, or abnormal conditions of operation or storage, the user has to pay for the repair. In that case you may ask for a cost estimate beforehand.

Test Standards:
- EN 61010-1:2010
- EN 61326-1:2013
Complies with the following relevant provisions:
- EC Low Voltage Directive (2014/35/EU)
- EC Electromagnetic Compatibility Directive (2014/30/EU)

SENTEST Instruments Corporation Ltd.
Tel : +886-2-2579-5079
Fax : +886-2-2579-5297
www.sentest.com



NS10P-E202609A

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NS10P

紅外線測溫儀



操作手冊



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4 產品規格

4.1 技術規格

型號	溫度範圍	頻譜反應	光學解析 (90%)
H1	600°C ~ 1600°C	1 µm	150:1
H2	300°C ~ 1300°C	1.6µm	150:1
H3	100°C ~ 600°C	2.3µm	60:1
H3L	50°C ~ 400°C	2.3µm	40:1

反應時間	5ms(95%)
精確度*1	±(0.5% 讀值+2°C)
重複性*1	±(0.3% 讀值+1°C)
放射率	0.100 ~ 1.000 (軟體可調)

*1 環境溫度=23±5°C · 放射率 H1/H2/H3=1.00

4.2 電氣特性

工作電源	24 VDC ±20%, < 100 mA
信號輸出	4 ~ 20mA
數位通訊	RS485 (兩線式)
最大負載	500Ω
連接線長度	2m (標準) · 5m 或 10m

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7.2 連接線標示

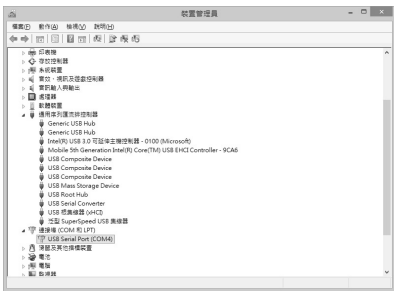
紅----	24VDC電源 (+)
黑----	24VDC電源 (-)
白----	4~20mA信號輸出 (+)
綠----	4~20mA信號輸出 (-)
黃----	RS485 (T+/A)
灰----	RS485 (T-/B)
藍----	雷射觸發
裸線----	遮蔽線

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11 軟體安裝

11.1 安裝USB驅動程式：

請先執行將RS485(2-wire)信號轉為USB界面的驅動軟體。USB驅動程式安裝完成後，在「裝置管理員」選項查看「連接埠(COM和LPT)」是否有出現「USB Serial Port (COM #)」和連接埠COM的編號 #，即表示USB驅動程式安裝成功。



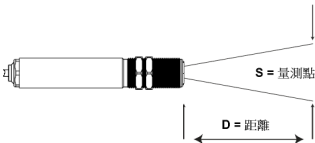
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4.3 機械參數

防護等級	IP 65 (NEMA-4)
環境溫度	0°C ~ 70°C
儲存溫度	-20°C ~ 80°C
相對濕度	10% ~ 95% (不結露)
連接線耐溫	-20°C ~ 80°C

5 光學路徑

光學路徑圖可顯示被測物體大小與測量距離之間的 D : S 關係，指出溫度探頭與目標間的距離 (D)，光學鏡頭所能測量到目標物 (S) 的大小。為了避免發生溫度測量的誤差，被測物體面積一定不能小於光學路徑圖所要求的光點直徑 (S)。



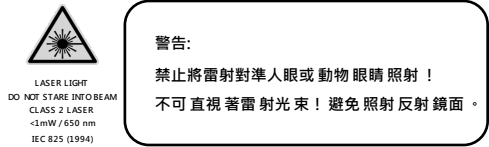
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8 雷射功能

接上電源後，NS10P會自動開啟雷射，2分鐘後將自動關閉。如要重新啟動雷射，需將NS10P的24VDC電源關閉後再送電，或將藍色(雷射觸發)和黑色(電源-)兩條線經由按鈕開關接通一次也可以開啟雷射。當環境溫度高於50°C時，為了保護雷射發射器，雷射會自動關閉。

9 瞄準方式

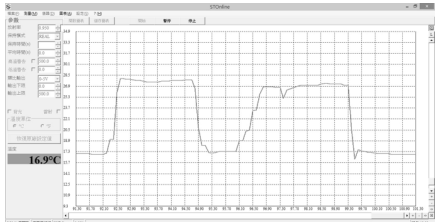
NS10P配有同軸雷射瞄準裝置，可進行輔助瞄準，雷射的紅色光點指示出測溫器光學鏡頭所瞄準的中心點。通過前後調整測量距離，找到溫度最大值，才可正確的量測到被測物的表面溫度。



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11.2 執行STonline 連線程式：

1) 將NS10P接上電源，再把USB連接線接至電腦的USB埠，先安裝再執行STonline程式，點擊「設置」選擇「通訊界面」，選擇正確的「連接埠」COM號碼，將「傳輸率」設定為9600，銀幕左下角如顯示出溫度值即成功連線。操作者可使用STonline 軟體在電腦上記錄溫度曲線、保存、查看溫度值。



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1 產品介紹

1.1 產品簡介

NS10P系列紅外線測溫器為單體式結構組成，包含光學鏡頭、溫度感應器、電子線路共同組裝在一個金屬不鏽鋼 (SS 304) 管裏，內置有同軸雷射輔助瞄準光點，探頭符合環境保護 IP65 / NEMA-4 等級，可滿足安裝在各種場合的使用要求。

1.2 包裝內容

- NS10P 測溫探頭 (含2m標準連接線)
- 固定螺帽 x 2
- 操作手冊

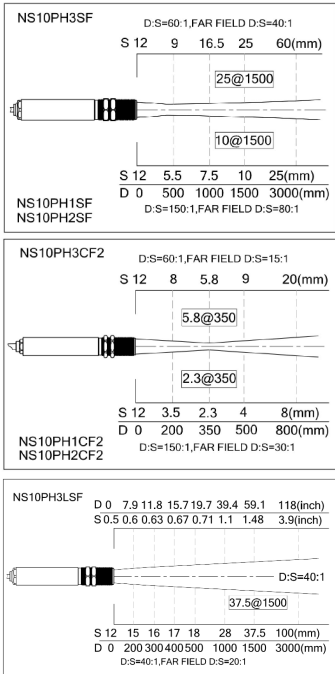
1.3 保養須知

NS10P的光學鏡頭必須保持清潔，避免因粘有灰塵、油煙等汙染物，而導致溫度測量誤差甚至損壞鏡頭，清潔鏡頭可用相機的擦鏡紙蘸清水擦拭。

1.4 注意事項

為避免高頻干擾，安裝探頭時避免接近變頻器、電焊和高週波加熱等會產生高頻率的電氣裝置。遠離EMF(電磁場)，例如：電動機、變頻器、馬達、大功率電纜等。避免環境溫度急遽的變化，溫度探頭的遮蔽線必須良好接地。

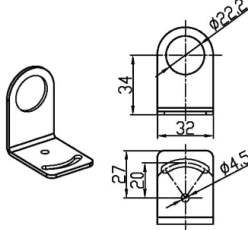
-2-



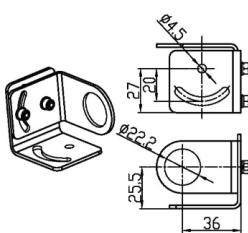
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10 配件

10.1 L型固定架



10.2 可調式固定架



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2) 開始測量：請按測量按鈕：測量→開始

3) 溫度座標軸的縮放比例：

- 全域縮放：圖表的溫度座標軸根據整條曲線的最大/最小值自動調整。
- 局部縮放：圖表的溫度座標軸根據局部曲線的最大/最小值自動調整。當某個最高值離開顯示區域，溫度座標軸會重新調整以達到局部曲線最佳顯示效果。
- 手動縮放：在任何時候，都可以人為的方式，去控制溫度座標軸。

4) 停止測量：停止目前的測量，請按停止鍵（功能表：測量/停止），保存鍵（功能表：檔案/保存為）打開令存新檔視窗選擇目的檔案夾和檔名。

5) 圖表設置：功能表->(圖表/設定) 有下拉式圖表選項。
顏色：設置溫度圖表和數字顯示的顏色。
初始時間：設定時間軸的長度

2 測溫原理

非接觸式紅外線測溫器是利用光學鏡頭來擷取物體表面所散發出紅外線輻射能量的強弱來測量溫度。可以安全、迅速又準確的測量難以接近或移動中，無法接觸的物體表面溫度，適合使用於在各種場合的測溫。

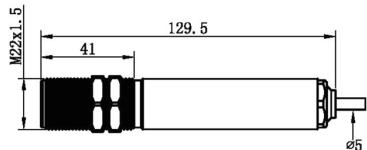
3 出廠預設值

類比輸出	4 ~ 20mA
數位通訊	RS485(兩線式)
放射率	1.000
平均時間	0s
最高值保持	未啟用
最低值保持	未啟用
峰值保值	未啟用

注意：使用儀器前請詳細閱讀本手冊，製造商保留因產品技術升級更改本說明書權利。

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6 外型尺寸



7 安裝

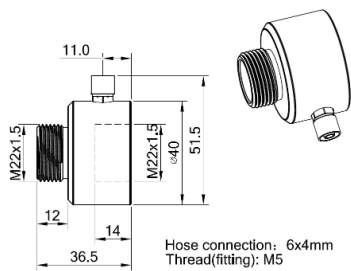
7.1 固定方式

NS10P外殼材質為SS 304不鏽鋼，附有兩個固定螺帽 (M22 x 1.5)，可直接安裝探頭於現場，也可選購固定架方便調整探頭準確瞄準被測物。

安裝探頭時，須確認鏡頭的光學路徑不可被任何物體所遮擋，以避免影響到NS10P測量溫度的準確性。

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10.3 吹氣環



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12 售後服務

每具紅外線測溫器都經過了嚴格品質管控的流程，如果產品出現故障請立即和客服部門聯絡，產品保固期限為自出貨之日起 12 個月。
保固期間不適用由於人為操作使用不當造成的損壞，製造商不對衍生原因造成的損壞負責。保固期內產品出現故障，製造商有權更換零件，製造商只提供更換、校正和維修服務，運輸費由寄件人承擔。
如因使用不當造成的損壞，由用戶承擔維修費用，用戶可以事先與客服部門聯絡，詢問預估的維修費用。

Test Standards:
- EN 61010-1:2010
- EN 61326-1:2013
Complies with the following relevant provisions:
- EC Low Voltage Directive (2014/35/EU)
- EC Electromagnetic Compatibility Directive (2014/30/EU)



SENTEST Instruments Corporation Ltd.
Tel : +886-2-2579-5079
Fax : +886-2-2579-5297
www.sentest.com

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