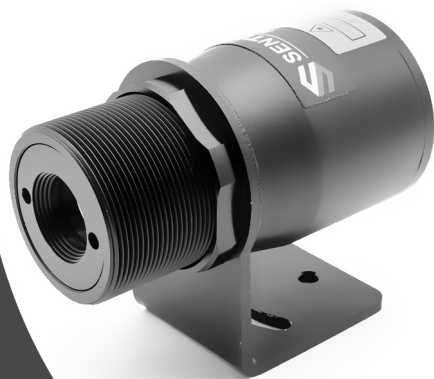


NS50P
Infrared Sensor



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.

4. Technical Data

4.1 Measurement Specifications

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

Response Time (95%)
Accuracy*1
Repeatability*1
Emissivity

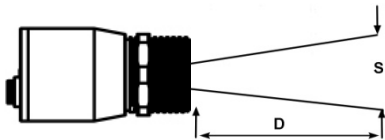
*1 At 23±5°C · emissivity LT/LR=0.95, H1/H2/H3=1.00

4.3 General Specification

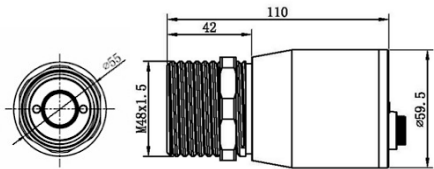
Table with 2 columns: Environmental Rating, Value

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.



6. Dimensions



7. Installation

7.1 Mechanical Installation

The NS50P comes with a standard 3 m cable, a mounting and fixed mounting bracket. 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.

7.2 Wiring

red----- 24VDC power (+)
black---- 24VDC power (-)
white---- 4~20mA signal (+)
green---- 4~20mA signal (-)
orange--- TX (TTL), optional
grey----- RX (TTL), optional
blue -----GND (TTL), optional
bare----- -Shield Ground

8. Aiming and Focusing

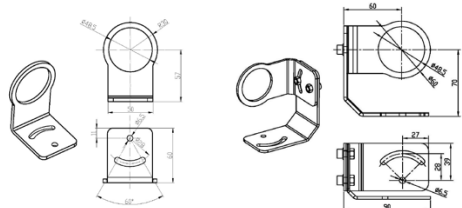
Position the sensor so the two laser beams are marking the exactly location and size of the target. Please gently move it around until the temperature signal reads the highest. Hold the sensor in place and secure the mounting base. At ambient temperature > 50°C, the laser will be switched off automatically.



WARNING: Do not point the laser directly at the eyes of persons or animals! Do not stare into the laser beam. Avoid indirect exposure via reflective surfaces!

10. Accessories

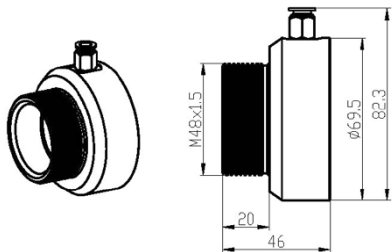
10.1 Mounting Bracket



Fixed Mounting Bracket

Adjustable Mounting Bracket

10.2 Air Purge Collar



11. Software

11.1 Install driver for USB Adapter :

Please install the driver for USB cable first. After connecting the USB adapter cable to your PC, the system will allocate the infrared thermometer adapter driver automatically.

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 “Infrared Thermometer Adapter (DR 6.x)” (only if your USB adapter is plugged in). In parenthesis the COM Port number is shown.

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 115,200.

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.

1. Description

1.1 Introduction

The NS50P is a non-contact infrared temperature sensor. The electronics are protected by a rugged IP65 aluminium alloy(A6061) housing. They calculate the surface temperature based on the emitted infrared energy of objects and convert the energy into temperature signal.

1.2 Scope of Delivery

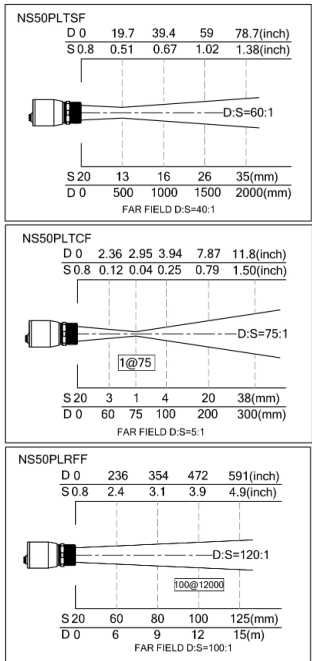
- NS50P
- Mounting nut x 1
- Fixed mounting bracket x 1
- 3m connection cable (standard, 4-cores)
- User manual

1.3 Maintenance

Keep the lens clean at all times. Any foreign matter on the lens would affect measurement accuracy. 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.

1.4 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.



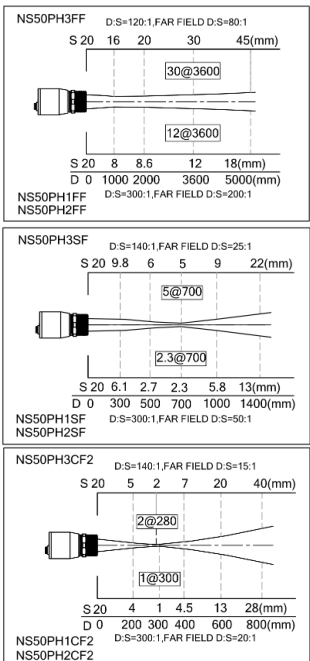
2. Basics of Infrared thermometry

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

Factory Default Setting :
Press the down (v) key (keep pressed), and then the up (^) key. The display will appear INIT for confirmation.



9. Operation

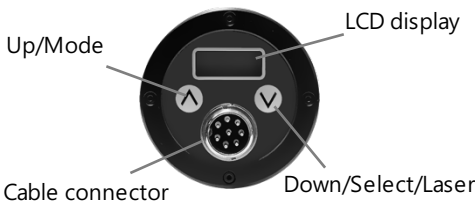


Table with 3 columns: Display, Mode, Adjustment Range

Sensor Setup :

1. Pressing the up (^) key and down (v) keys simultaneously to enter setup function.
2. Press the down (v) key, when a (-) symbol appears at the right side of the selected function confirming into Setting Mode.
3. Press the down (v) or up (^) key to select the functional parameter.
4. No action for 7s forces the unit to leave the Setting Mode and save the parameter.
5. Laser ON/OFF : Pressing the down (v) key to switch laser sighting on or off.

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)

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NS50P-E202009A

NS50P

紅外線測溫器



SENTEST
Instruments

操作手冊

4 產品規格

4.1 技術規格

型號	測溫範圍	頻譜響應	光學解析 (90%)
LT	0°C ~900°C	8~14μm.	60:1(SF)/75:1(CF)
LR	0°C ~1300°C	8~14μm	120:1
H1	600°C~1600°C	1μm	300:1
H2	300°C~1300°C	1.6μm	300:1
H3	100°C~ 600°C	2.3μm	140:1 /120:1(FF)

反應時間 LT/LR=150ms，H1/H2/H3=5ms (95%)

精確度*1 LT/LR：±1% 讀數或 ±1.5°C，取大值

H1/H2/H3：±(0.5% 讀數+2°C)

重複性*1 LT/LR：±0.5% 讀數或 ±1°C，取大值

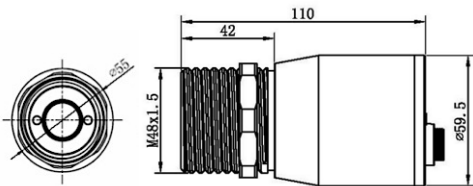
H1/H2/H3：±(0.3% 讀數+1°C)

放射率 0.100 ~1.000 (可調)

4.2 電氣特性

信號輸出	4 ~20mA
數位通訊	TTL
最大負載	500Ω
工作電源	24VDC±20% <100 mA
顯示幕	6位數背光 LCD

6 外型尺寸



7 安裝

7.1 固定方式

NS50P 外殼材質為A6061鋁合金，附有一個固定螺帽 (M48 x1.5)及 L 型固定架，可直接安裝探頭於現場，也可選購可調式固定架，方便調整探頭準確瞄準被測物。

安裝溫度探頭時，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NS50P測量溫度的準確性。

9 瞄準方式

NS50P配有雙雷射光瞄準裝置，可幫助輔助瞄準被測物體，雙雷射的紅色光點指示出測溫器的光學鏡頭現正所量測到的直徑範圍。可前後調整測量得距離，直到被測物的面積位於雙雷射紅色光點內，才可正確的量測到被測物的表面溫度。雷射開啟2分鐘後將會自動關閉當環境溫度 > 50°C時，為了保護雷射發射器，也會自動關閉雷射。



LASER LIGHT
DO NOT STARE INTO BEAM
CLASS 2 LASER
<1mW / 650 nm
IEC 825 (1994)

警告:

禁止將雷射對準人眼或動物眼睛照射！
不可直視著雷射光束！避免照射反射鏡面。

目錄

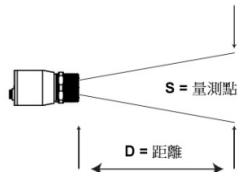
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4.3 機械參數

防護等級	IP 65
操作溫度	0°C ~70°C
儲存溫度	-20°C ~80°C
相對濕度	10% ~95% (無凝結)
連接線耐溫	-20°C ~80°C
連接線長度	3m (標準), 5m 或 10m
重量	500g (不含連接線)

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) 與光學鏡頭所能測量到目標物 (S) 的大小比例。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)。



1 產品介紹

1.1 產品簡介

NS50P系列紅外線測溫器為單體式結構，由不同的零件所組和而成，包含光學鏡頭、溫度感應器、電子線路及LCD顯示螢幕/控制鍵，共同組裝在一個鋁合金 (A6061) 金屬管裏，表面經硬化處理，耐磨不易劃傷。溫度探頭符合環境保護 IP65等級，可滿足安裝在各種場合的使用要求。

1.2 包裝內容

- NS50P 測溫探頭
- 固定螺帽
- L 型固定架
- 3m 快速連接線 (標準 - 4 芯線)
- 操作手冊

1.3 保養須知

NS50P 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 測溫原理

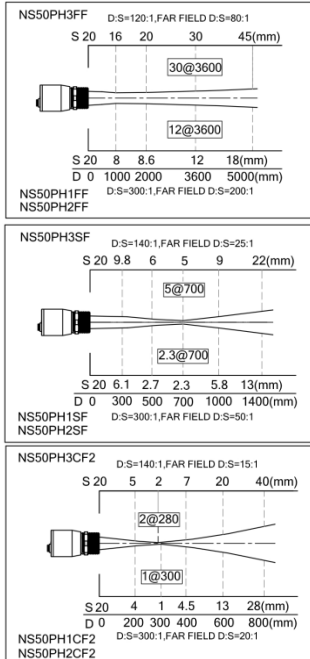
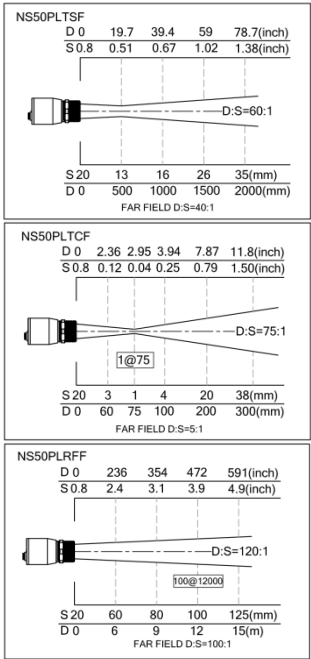
非接觸式紅外線測溫器是利用光學鏡頭來攝取物體表面所輻射散發出紅外線波長能量的強弱，來測量溫度。可以安全、迅速又準確的測量難以接近或移動中，無法接觸物體的表面溫度，適合使用於在各種生產和維護的測溫應用。

3 出廠預設值

類比輸出	4~20mA
放射率	LTCF/LR=0.95, H1/H2/H3=1.00
平均時間	LTCF/LR=0.2s H1/H2/H3=0s
最高值保持	未啟用
最低值保持	未啟用
峰值保持	未啟用
溫度單位	°C

* 欲恢復出廠預設值，請參照11頁第5項內容。

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。



8 功能操作



1.接通電源後，NS50P 進入初始化程式，螢幕先顯示 (INIT)，然後再開始測量溫度。

2.在測溫狀態下，先按遮增鍵(▲)不放，再按遮減鍵(▼)後，進入參數設置值功能。

3.在顯示各個功能項目時，可以按遮減鍵(▼)進入該參數的修改功能，再按遮增鍵(▲)增加數值或按遮減鍵(▼)來減少數值。如果7秒內按鍵沒有動作，NS50P將自動保存目前的參數值，並回到測溫狀態。

4.開啟/關閉雷射：在測溫狀態時，按遮減鍵(▼)可以快速開啟或者關閉雷射。

11 軟體安裝

11.1 安裝USB驅動程式：

請將測溫器接線上的USB插頭接上電腦，再將安裝CD片放入光碟機，當電腦螢幕上顯現出CD內的檔案夾時，雙擊 Infrared Thermometer Adapter Installer 程式，按照提示安裝。

軟體安裝完成後，在「裝置管理員」選項查看「連接埠(COM和LPT)」是否有出現 "Infrared Thermometer Adapter" 的連接埠及COM的編號，即表示USB驅動程式安裝成功。

11.2 執行STonline 連線程式：

先將NS50P接上電源，再將USB連接線插至電腦，執行STonline程式，點擊「設置」選擇「通訊介面」，選擇正確的「連接埠」COM號碼，將「傳輸率」設定為115,200，銀幕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。

5.恢復原廠設置：

在測溫狀態下，按遮減鍵(▼)不鬆手，再按遮增鍵(▲)，當LCD螢幕顯示(INIT)時，則確認儀器已恢復為原廠設置狀態。

顯示	說明 [舉例]	設定內容
S ON	雷射開(ON)/關(OFF)	按(▼)或(▲)鍵切換
E 1.000	放射率	0.100 ~ 1.000 (可調)
A 0.2	信號輸出平均時間	(0.0 ~ 600.0 s)
P 0.0	信號輸出最高值保持 (未啟動)	(0.0 ~ 600.0 s)
V 0.0	信號輸出最低值保持 (未啟動)	(0.0 ~ 600.0 s)
AP OFF	峰值保持啟動/關閉	按(▼)或(▲)鍵切換
AP xxx	峰值保持顯示值	可依需求設定
註：P(最高)、V(最低)和 AP(峰谷)此三種信號輸出保持，只能三種一。		
L xxx	下限溫度 → 4mA 對應的輸出信號	根據不同的機型溫度段顯示
H xxxx	上限溫度 → 20mA 對應的輸出信號	
Unit C	溫度單位	°C / °F

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因人為操作使用不當造成的損壞，製造商不對衍生性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)



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NS50P-C202009A