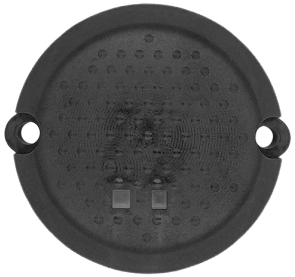
NB-IoT / LoRa 雙鑑偵測停車在席計時器

- **100% SGS 精準度測試** 報告-地磁+微雷達 雙鑑偵測
  100% Accuracy tested by SGS Lab.- Geomagnet+Radar Detection
- **5秒**內辨識停車格**快速換車行為**，整合**勞務開單**與**停車計費**
  5 seconds identifing **Tailing-parking** to **Self-ticketing automation**
- **IP68 SGS** 測試報告-可在水裡遭車輾壓也不進水
  SGS tested **IP68** grade - Water-proof rolled over under water by vehicle
- **38安培** 超大容量電池 **3年** 電池壽命
  3 years battery life **38AH** ultra large battery capacity
- **5分鐘** 快速安裝，**完全免校正**
  5 minutes installing one sensor. **No calibration required.**
- **88%** 最高天線效率，**專利設計** 高效4G LTE天線
  88% antenna performance max **patent-designed** for 4G LTE
- **700/900/1800MHz** 全頻段使用(NB-IoT/CAT-M1/LoRaWAN)
  Supports **700/900/1800MHz** wide bands(NB-IoT/CAT-M1/LoRa WAN protocol)
- 支援 **遠端韌體更新** 及參數設定功能，便利維運
  Supports Firmware and Configuration **Remotely Upgrade (FOTA/COTA)**

雙鑑偵測停車在席計時器



地貼式

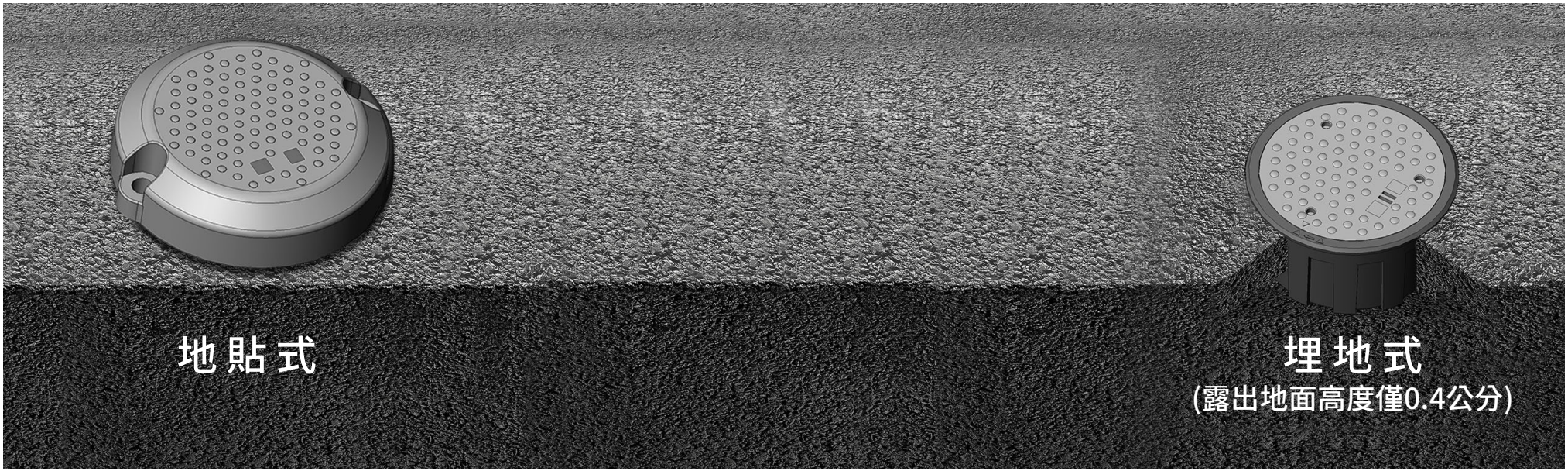
P01

- 偵測技術 : 地球磁場 + 微雷達
- 安裝方式 : 地貼式
- 管理資訊平台與APP : GoGoParker (泊泊寶)
- 電力供應 : 27000毫安培小時
- 認證 : NCC(2018-PLMN11)
- 偵測標的 : 車位在席(有車或無車)
- 尺寸 : (D)15 X (H)3.9公分 / (D)5.9X (H)1.5英吋
- 重量 : 551公克 /19盎司
- 無線涵蓋範圍 : 500公尺-5公里(Line-of-sky)
- 防水性 : IP68等級
- 耐壓性: 5000公斤
- 無線通訊協議 : NB-IoT(Support E-SIM)/CAT-M1/LoRa/ZigBee
- 無線通訊頻率 : 700~900MHz / 2.4GHz
- 電池服務時間: 1 - 3年(不同使用情境)
- 操作溫度: -20 ~ 70度(攝氏)(80度3個小時)
- 反映時間: < 98%, 2分鐘內可轉態

埋地式

P02

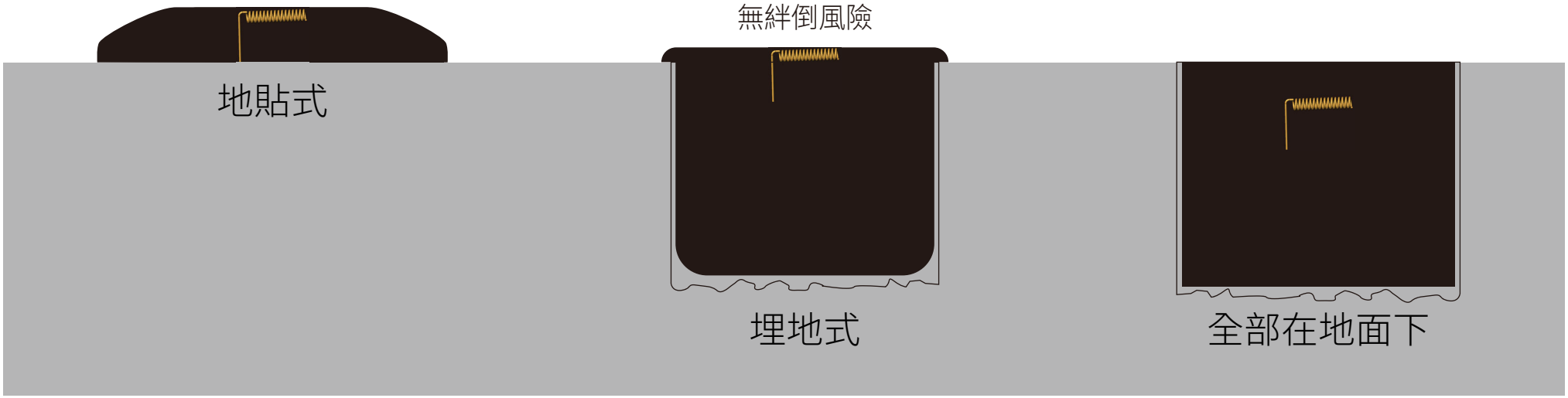
- 偵測技術 : 地球磁場 + 微雷達
- 安裝方式 : 埋地式
- 管理資訊平台與APP : GoGoParker (泊泊寶)
- 電力供應 : 工規電池19000/38000毫安培小時
- 認證 : NCC(2018-PLMN11)
- 偵測標的 : 車位在席(有車或無車)
- 尺寸 : (D)12 X (H)6.8公分 / (D)4.7 X (H)2.7英吋
- 重量 : 488公克 / 17.2盎司
- 無線涵蓋範圍 : 500公尺-5公里(Line-of-sky)
- 防水性 : IP68等級(SGS認證)
- 耐壓性: 5000公斤(SGS認證)
- 無線通訊協議 : NB-IoT(Support E-SIM)/CAT-M1/LoRa/ZigBee
- 無線通訊頻率 : 700~900MHz / 2.4GHz
- 電池服務時間: 1 - 5年(不同使用情境)
- 操作溫度: 攝氏-20 ~ 70度(80度3個小時)
- 反映時間: < 98%, 2分鐘內可轉態



天線位置與效能比較

尼采埋地式停車計時器安裝後高度為突出地面0.4公分，在設計之初就考慮完全符合法規，且增進天線效能

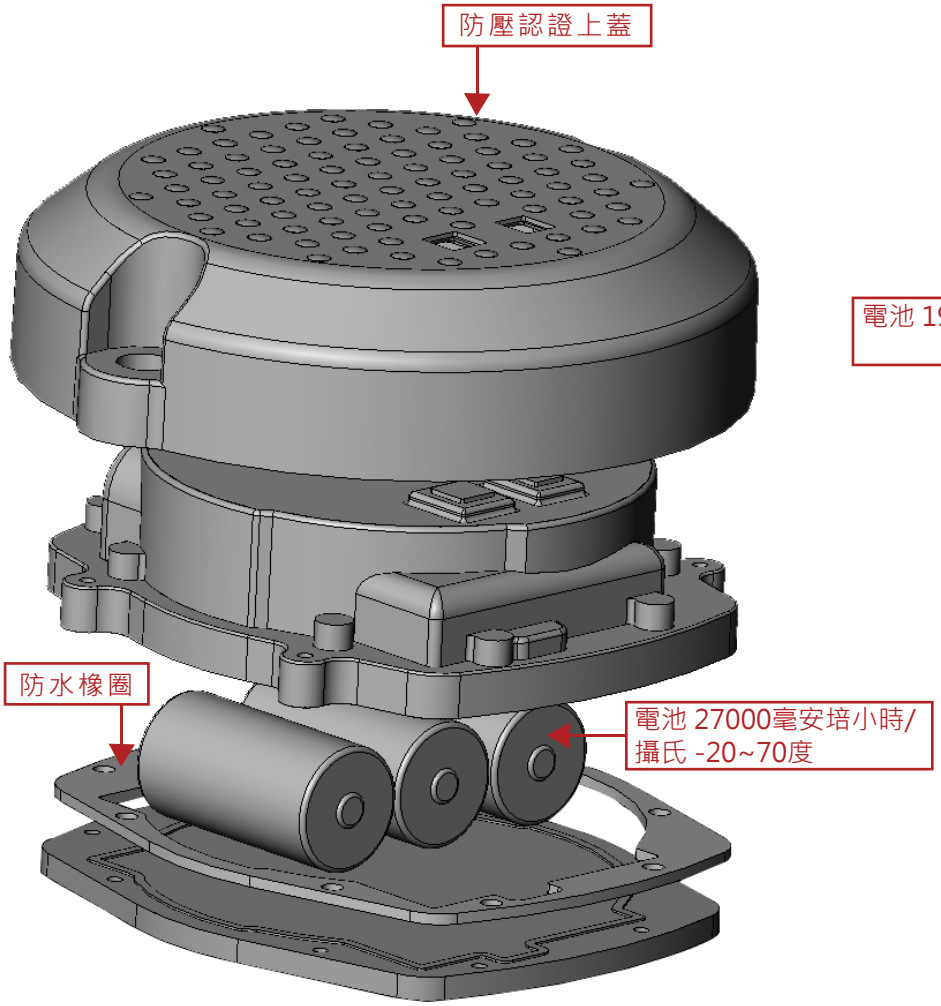
NR P01	NR P02	其他廠牌
	符合法規0.6公分以內 只高出地面0.4公分 無絆倒風險	

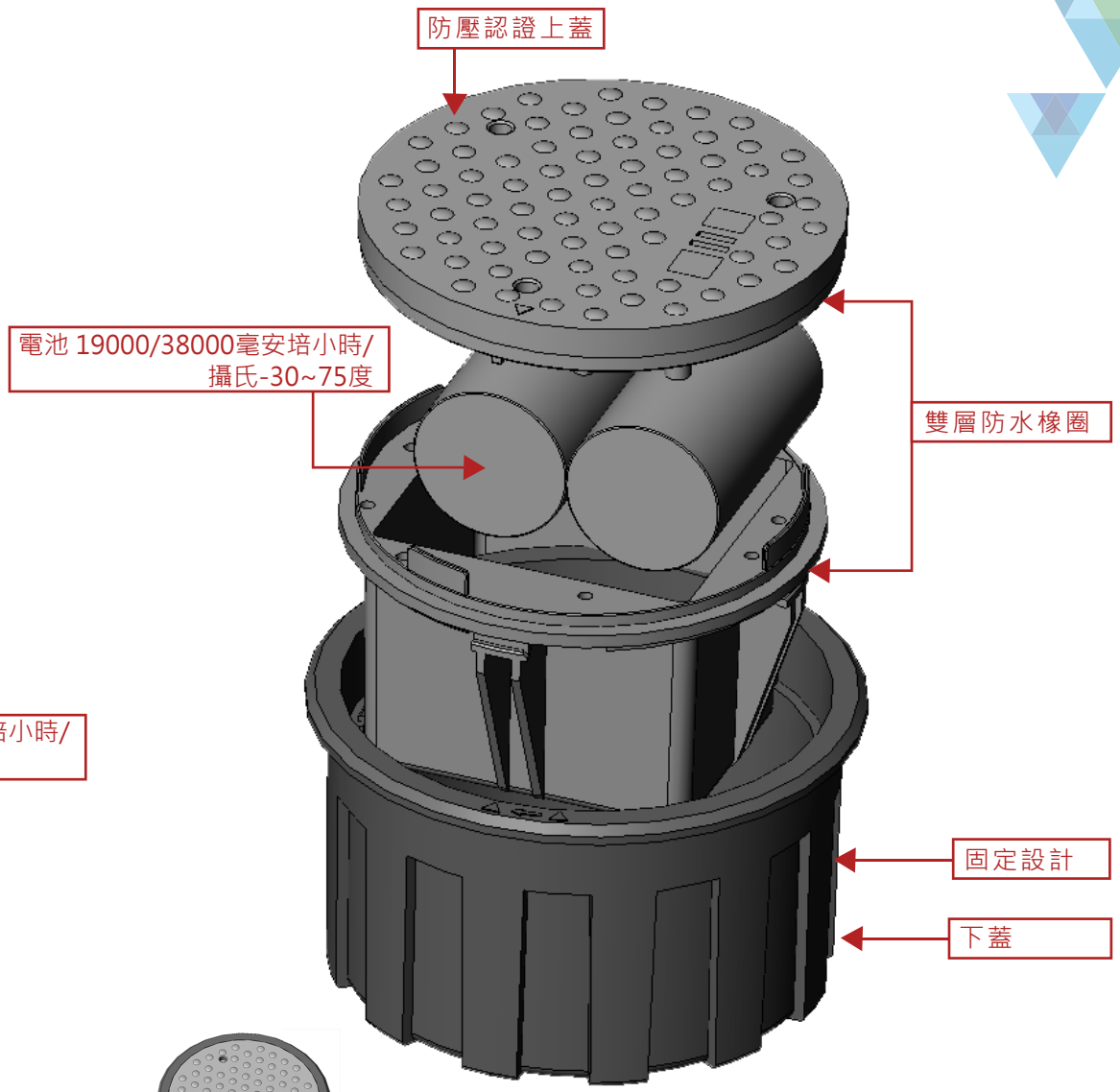


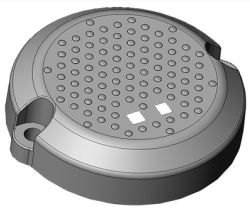
天線位於地面上	天線位於地面上	天線位於地面下
天線傳輸效能較佳	天線傳輸效能較佳	天線傳輸效能有限

天線示意

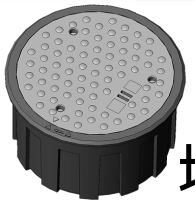
產品結構圖解







地貼式

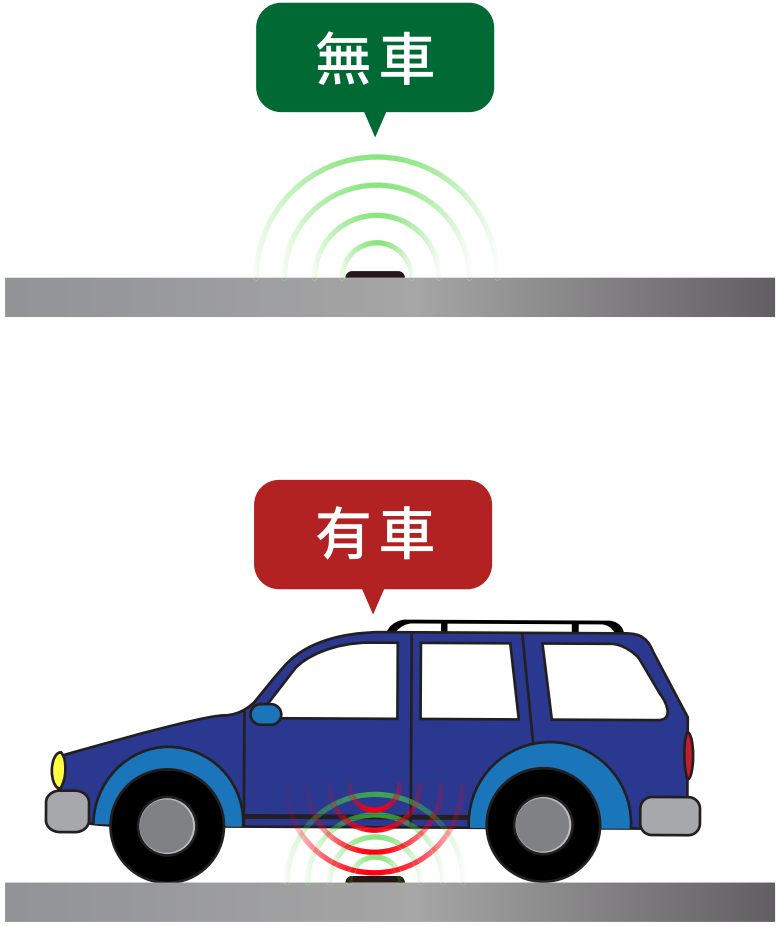


埋地式

最佳準確率

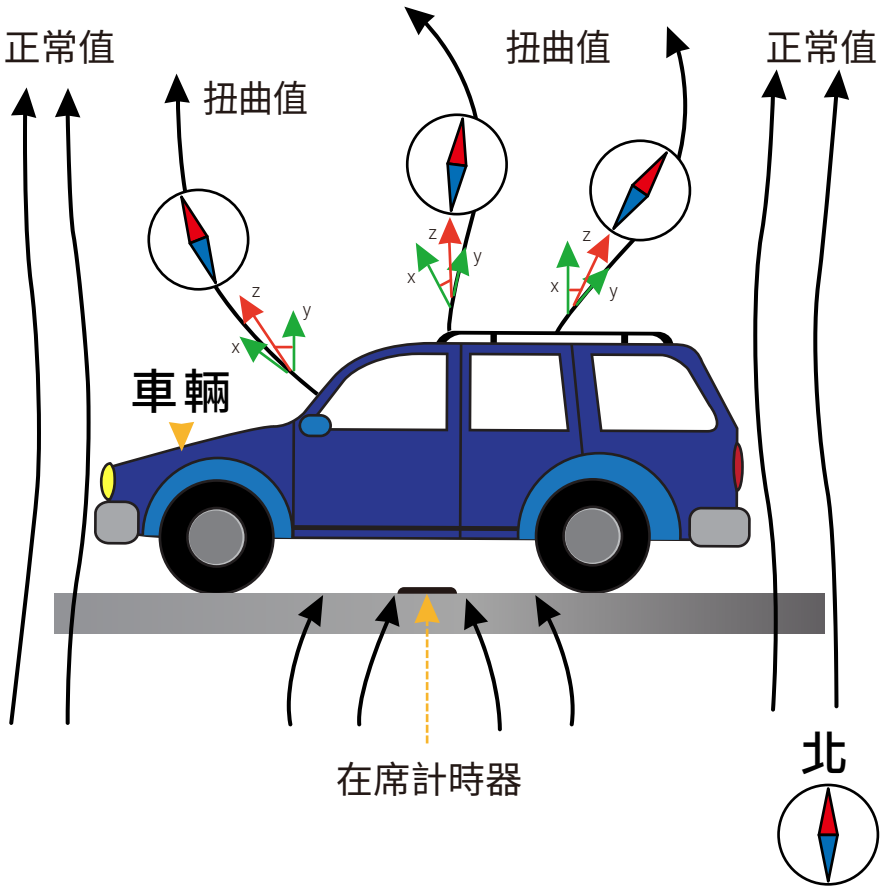
微雷達

微雷達傳送無線微波與接受反射訊號來偵測判斷車位的車及無車狀態。



地磁

當車輛覆蓋在車檢器上時，拗折的3軸磁場搭配尼采研發團隊經過大數據與人工智慧所產生的演算法，正確地判斷有車及無車的狀態。

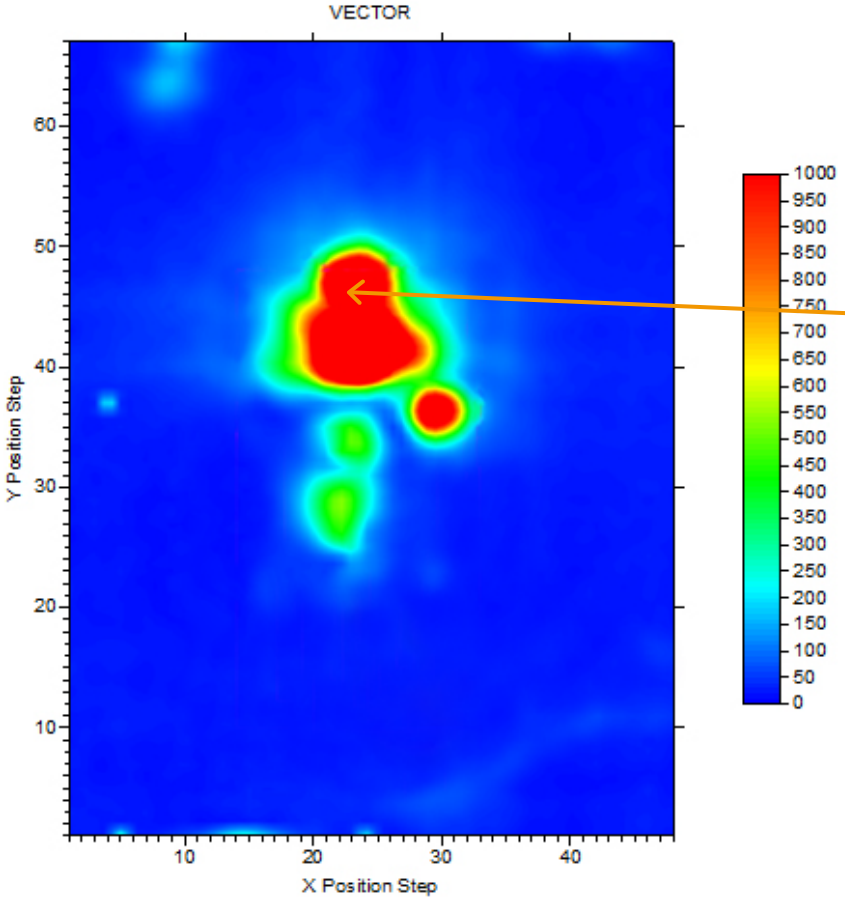


最佳準確率

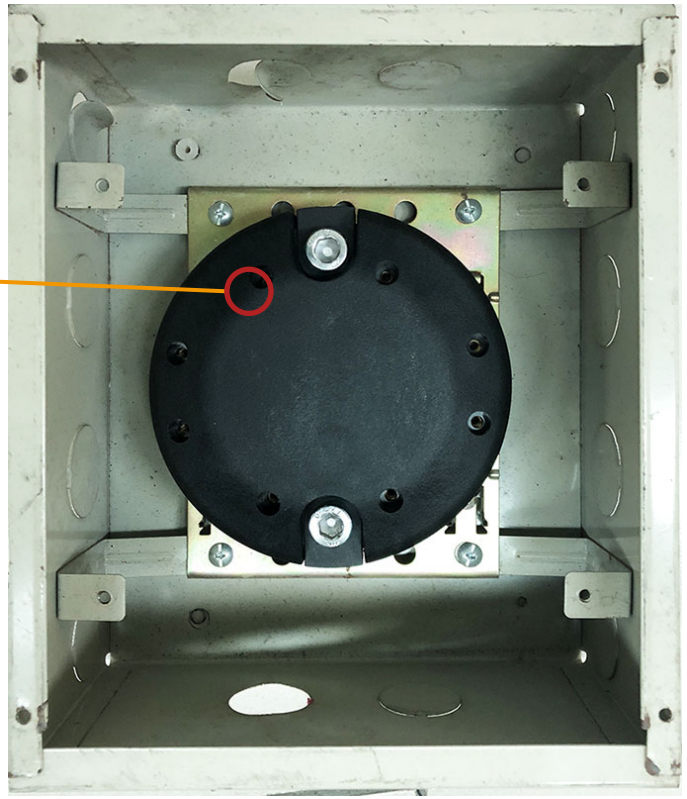
尼采所研發之高精準度停車在席計時器，透過軟硬磁校正及磁場掃描校正，創造出最穩定且精準的在席計時器。

誤報排除: ① 臨車經過不誤報　② 併排停車不誤報　③ 一般磁場干擾不誤報

註: 有些車款因為底盤過高以及含金屬量太少，導致無法正確偵測，安裝前請詳閱安裝說明出以減少該狀況發生。



磁場熱地圖

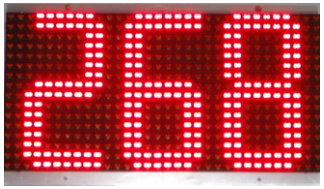


測試計時器

外掛設備介紹

LoRa 基地台

LoRa 無線通訊距離 10 公里
(開放空間直線距離)
超高敏感度
快速安裝
防水外殼
網路連線



室外剩餘車格 CMS
(Changeable Message Sign)

- 大約尺寸: 160(W) X 120(H)公分
- 大約數字尺寸: 15(W) X 25(H)公分
- 通訊協議: ASCII/ModBus RTU
- 環境耐受標準: IP65 室外
- 依客製需求

範例照片

安裝特點

地貼式

特點:

適用路外停車
- 優良訊息接收與傳送效能
- 簡易安裝與維修
- 只需兩隻螺絲固定，安裝快速

埋地式

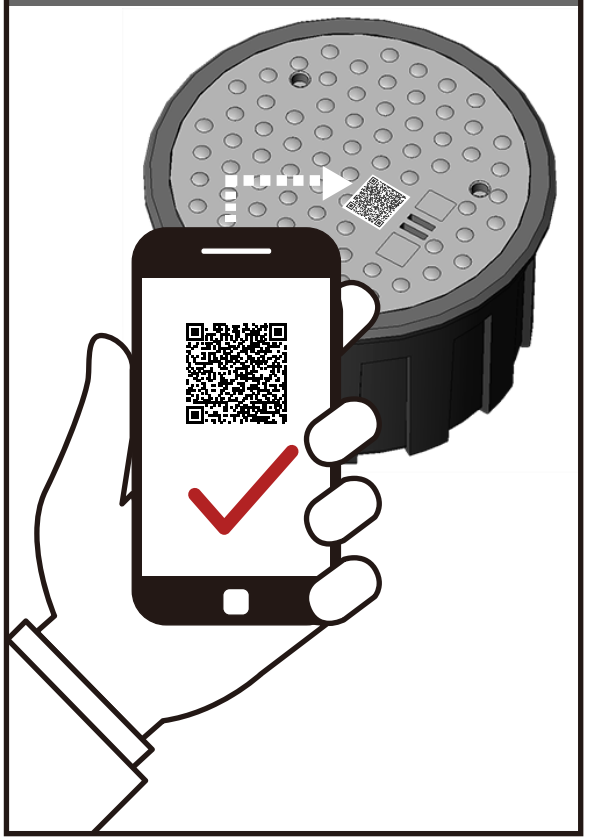
特點:

適用路邊停車
- 優良訊息接收與傳送效能
- 根據標準鑽頭尺寸設計，安裝快速
- 低失竊風險
- 低受破壞風險
- 無意外絆倒風險

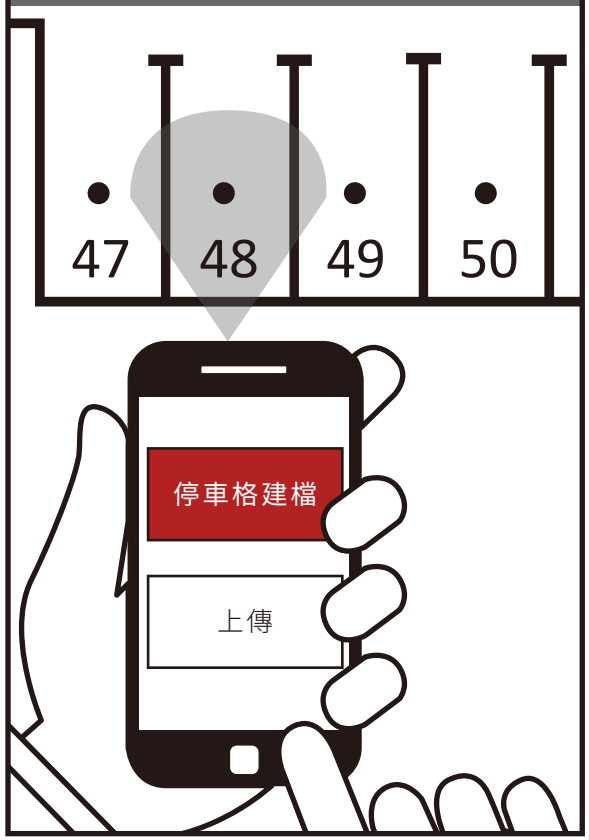
安裝用APP

簡單3步驟整合計時器IMEI與停車格GPS

1 掃描地磁計時器上的二維條碼

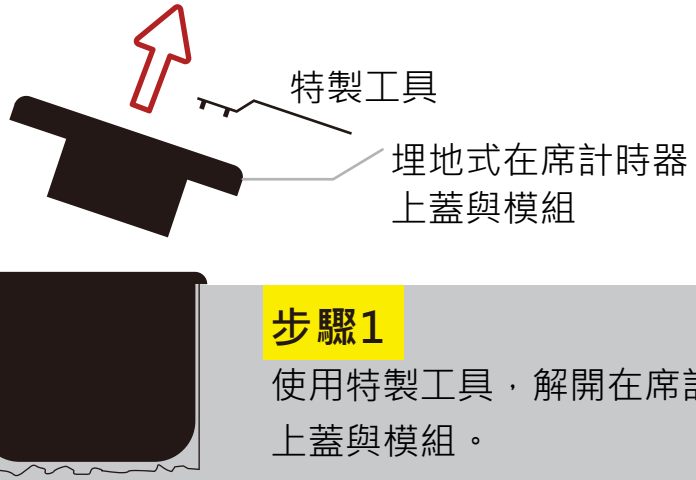


2 停車格建檔



3 上傳到雲端

簡易刨除與安裝步驟

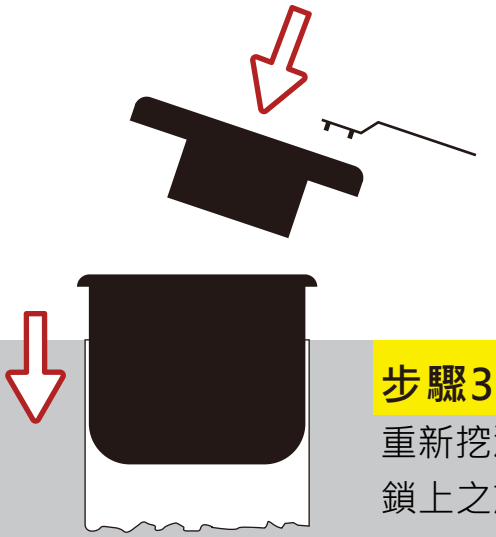


步驟1

使用特製工具，解開在席計時器上蓋與模組。

步驟2

刨除路面與在席計時器下蓋。



步驟3

重新挖洞並更換新下蓋，然後鎖上之前的模組與上蓋。

步驟4

完成!

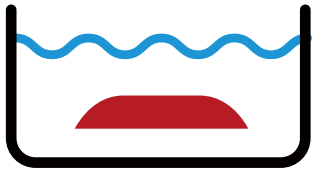
輕鬆又簡單

顏色選擇

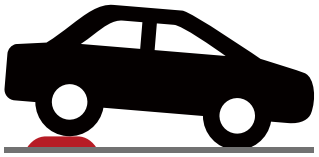
依據停車格地面顏色可選擇不同顏色的在席計時器

水泥　柏油　柏油/水泥　柏油/水泥/樹脂

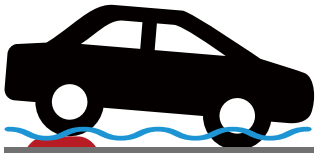
耐壓耐水測試



浸水測試
IP68



耐壓測試
5000公斤

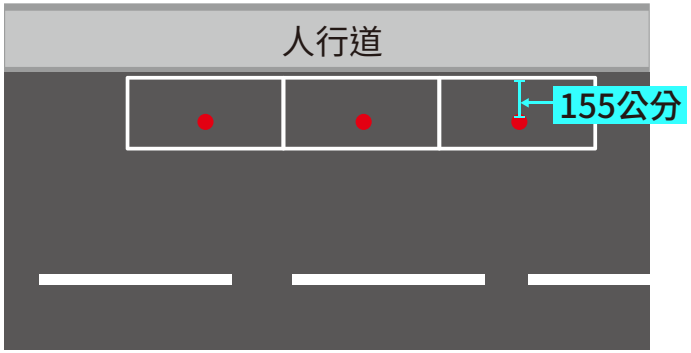


水中耐壓測試
實做模擬驗證

有效安裝位置

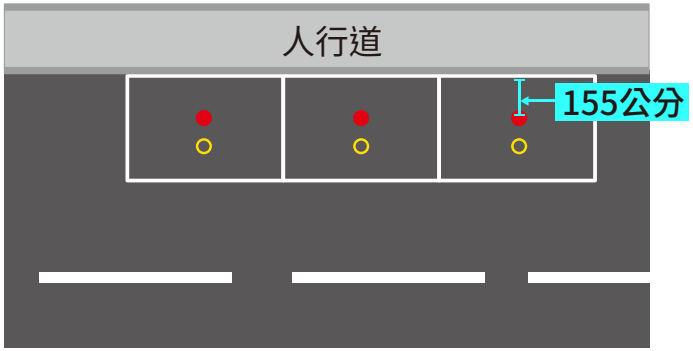
增加偵測精準度，減少誤報率

標準橫式路邊停車格
(2.5 X 5.5 公尺)



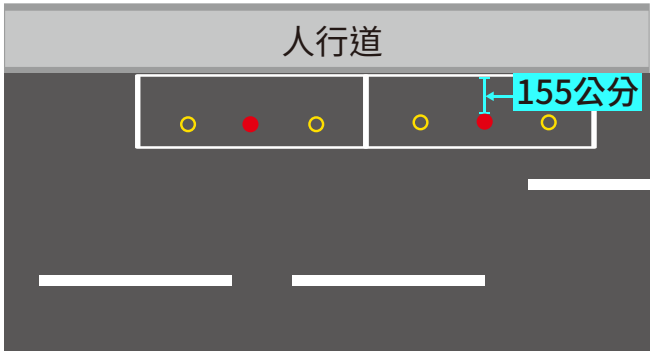
計時器離人行道155公分處安裝
(如實心圓點)

加寬非標準橫式路邊停車格
(大於 2.5 X 5.5 公尺)



計時器離人行道155公分處安裝
(如實心圓點)
可增加輔助計時器(如空心圓點)

加長非標準橫式路邊停車格
(2.5 X 大於5.5 公尺)

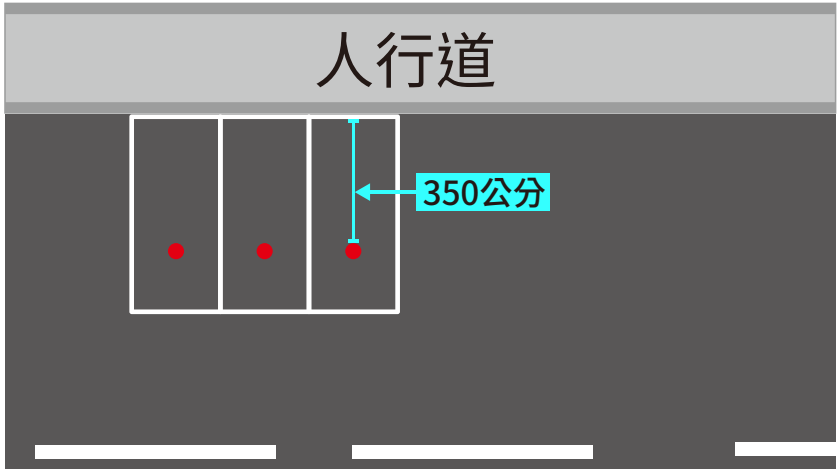


計時器離人行道155公分處安裝
(如實心圓點)
可增加輔助計時器(如空心圓點)

有效安裝位置

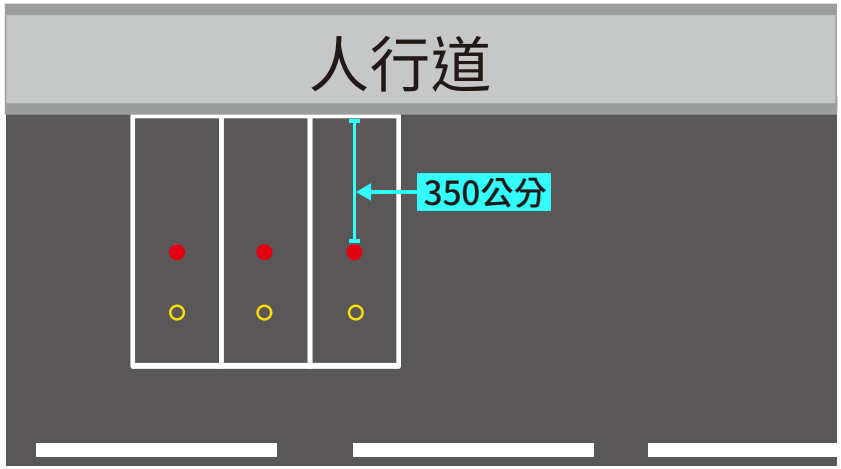
增加偵測精準度，減少誤報率

標準直式路邊停車格
(5.5 X 2.5 公尺)



計時器離人行道350公分處安裝
(如實心圓點)

非標準直式路邊停車格
(大於5.5 X 2.5 公尺)



計時器離人行道350公分處安裝
(如實心圓點)
可增加輔助計時器(如空心圓點)

錯誤案例

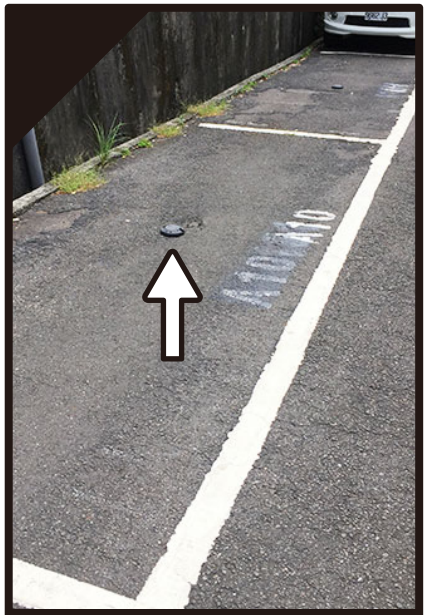
因本車格加寬，為非標準車格，計時器安裝錯誤(如左圖圓圈位置)，造成無法正確偵測。
請參考前頁正確安裝範例。

安裝範例

殘障車位

禁止停車出入口

營業用停車位



路邊停車位

室內停車位

尼采產品優勢

項目	NHR	同業 A	同業 B
感應方法	微雷達 + 地磁	地磁	Optic + 地磁
防水等級	IP68(世界級SGS認證)	IP67	IP67
凸出地面高度	0.4公分	0.6公分	0.3公分
操作環境溫度	攝氏 -20 ~ 80度	攝氏 -20 ~ 60度	攝氏 -20 ~ 80度
即時出入停車偵測	可分辨，可被偵測	無法分辨偵測不同	無法分辨偵測不同
無線通訊協議	NB-IoT / LoRa WAN	NB-IoT	私有協議
電池壽命	3 年	3 年	3 年
安裝時間	5 分鐘 / 免校正	30 分鐘 / 需校正	15 分鐘 / 免校正
防護耐壓等級	5噸碾壓式防水(世界級SGS認證)	5噸	無報告
天線效率	極佳 高達88%(多國專利)	一般	一般
無線通訊頻率	Full bands 700 ~ 900MHz	700 或 900 MHz	2.4GHz
遠端設定	有	無	無
低電量警報	有	有	有
防盜警報	有 (內建震動式感應器)	無	無
管理平台	多功能智慧平台 + APP	無平台	無平台
鹽霧測試	有(世界級SGS認證)	無	無
快速換車辨識	有(世界級SGS認證)	無	無
抗旁車干擾	有(世界級SGS認證)	無	無
NB-IoT OTA升級	COTA + FOTA	無	無

準確度測試-第三方公證實驗室

SGS
Reliability Laboratory

TEST REPORT

1. 停車在席偵測精準度試驗:

試驗設備：

名稱	廠牌	型號	序號
碼錶	CASIO	HS-3	702Q02R
試驗車輛	Honda	FIT	N/A
試驗車輛	Lexus	RX350	N/A

試驗方法/ 規格：

1. 試驗條件--I:

試驗環境： 雨天(戶外)

試驗方法： 將樣品置於地面，車輛移動至感測器上方或車輛移出感測器上方，檢查監控平台是否有接收到感測器訊號及平均時間。

試驗次數： 220 次(110 次移進、110 次移出)

2. 試驗條件--II:

試驗環境： 雨天(戶外)

試驗方法： 將樣品置於地面，第一台車輛移出感測器上方後，另一車輛迅速移至感測器上方，檢查感測器是否可以分辨出不同車輛訊號。

試驗次數： 3 次

3. 試驗條件--III:

試驗環境： 雨天(戶外)

試驗方法： 將樣品置於地面，車輛移動至感測器旁，檢查感測器是否有誤判訊號發生。

試驗次數： 3 次

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TEST REPORT

代測樣品：

型號/ 編號： P01(P02)/ No.1

數量： 共 1 件

測試結果：

1. 試驗條件--I:

樣品型號/編號 \ 試驗次數 \ 檢查項目			正確辨識次數	精確率	平均辨識回報時間(秒)
P01(P02)/ No.1	220	110 次(進車)	110	100%	13
		110 次(出車)	110	100%	14

2. 試驗條件--II:

樣品型號/編號 \ 試驗次數 \ 檢查項目		檢查樣品是否有分辨出訊號？	精確率
P01(P02)/ No.1	3 次(移出)	是	100%
	3 次(進入)	是	100%

3. 試驗條件--III:

樣品型號/編號 \ 試驗次數 \ 檢查項目		檢查樣品是否有誤判訊號？	誤判率
P01(P02)/ No.1	3 次	否	0%

準確度測試-第三方公證單位

在此Nb-IoT/Lora 停車感測器SGS精準度報告中，有三個重要測項：

1. 入車與出車的在席偵測
- 第三方測試精準度: 100% (220次)

2. 快速換車的辨識測試(模擬都會區爭車位之情況，前車剛走，後車隨即停入之情況；若無法辨識前車與後車，無法進行自主開單):
- 第三方測試精準度: 100%

3. 旁車干擾的誤判測試
- 第三方測試誤判度: 0%

● 測試條件為 " 雨天 " 是更嚴苛的測試條件，更可以看出本精準度測試的可靠性，因感測器與無線通訊相當程度都會受下雨影響。

● 進車與入車反應平均時間為13.5秒，也可符合大部分的國內外標案的需求。當然也要看當時NB-IoT/LoRa的連線品質決定。

壓力測試報告

壓力驗證: 5000公斤

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TEST REPORT

Report No.: HC40026A/2018
Page: 1 of 4
Date: April 13, 2018

NIETZSCHE ENTERPRISE CO., LTD.
4F, NO.560, 2ND SEC., CHUNG SHAN RD.,
CHUNG HO DIST., NEW TAIPEI CITY, TAIWAN

The following merchandise was submitted and identified by the vendor as:

Product Description: NB-Iot Smart Parking Sensor
Style/ Item No.: P02/ No.1
Manufacturer/ Vendor: Nietzsche Enterprise Co., Ltd.
Country of Origin: Taiwan
Quantity: Total 1 piece
Testing Period: Apr. 10, 2018

We have tested the submitted sample(s) as requested and the following results were obtained:

Test Required: (According to client's test specification, please see following sheets in detail.)
1. Compression Test

Test Results: – PLEASE SEE ATTACHED SHEETS –

Signed for and on behalf of
SGS TAIWAN Ltd.

Hank Chiou
Supervisor

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Reliability Laboratory

TEST REPORT

Report No.: HC40026A/2018
Page: 2 of 4

1. Compression Test:

Test Equipment:

Name	Brand	Model	Serial No.
Materials Testing System	CHUN YEN	CY-6040A4	10112007

Lab Environmental Conditions:

Ambient temperature: (25 ± 3) ℃
Ambient humidity: (55 ± 20) % RH

Test Method/ Specification:

Test Method: Increase the load until it reaches the test load. Maintain the load for a designated duration, then release the load.
Sample Condition: Mated with fixture
Applied load: 5,000 kgf
Test speed: 1 mm/ minute
Test duration: 5 seconds
Testing device: As shown in photo 3

- Examine the appearance of specimen(s) by visual check after this test.

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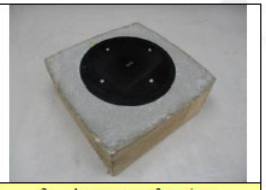
TEST REPORT

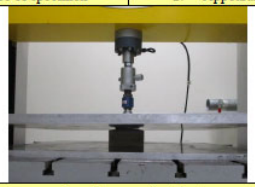
Report No.: HC40026A/2018
Page: 4 of 4

Test Photos:

1. Appearance of specimen



2. Appearance of specimen



3. Compression Test

— — — The End of Test Report — — —

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防水測試報告

防水驗證: IP68

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TEST REPORT

Report No.: HC40026/2018
Page: 1 of 4
Date: April 12, 2018

NIETZSCHE ENTERPRISE CO., LTD.
4F, NO. 560, 2ND SEC., CHUNG SHAN RD.,
CHUNG HO DIST., NEW TAIPEI CITY, TAIWAN

The following merchandise was submitted and identified by the vendor as:

Product Description: NB-IoT Smart Parking Sensor
Style/ Item No.: P02/ No.1
Manufacturer/ Vendor: Nietzsche Enterprise Co., Ltd.
Country of Origin: Taiwan
Quantity: Total 1 piece
Testing Period: Apr. 10, 2018

We have tested the submitted sample(s) as requested and the following results were obtained:

Test Required:

Test for Degrees of Protection Provided by Enclosures (IEC 60529 Edition 2.2: 2013)

IP Code	IPX8
First characteristic numeral	Omitted
Second characteristic numeral	Degrees of protection against ingress of water

Test Results:

Conclusion
Submittals sample(s) comply with the requirement and acceptance conditions of IEC 60529 Edition 2.2: 2013 Degrees of Protection Provided by Enclosures -- IPX8 The detailed description of test result, please see attached sheet(s).

Signed for and on behalf of
SGS TAIWAN Ltd.

Ivan Wang

Ivan Wang
Team Leader

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TEST REPORT

Report No.: HC40026/2018
Page: 2 of 4

Test for Degrees of Protection Provided by Enclosures:

Test Equipment:

Name	Brand	Model	Serial No.
IPX7/IPX8 Immersion Tank	Self-made	SGS-ETR-030201	ETR000001

Lab Environmental Conditions:
Ambient temperature: (15 ~ 35)℃
Ambient humidity: (25 ~ 75) % RH

Test Method/ Specification:
Test method: IEC 60529 Edition 2.2: 2013 --IPX8

Test for protection against water:
Sample condition: Non-Operating
Test means: Completely immerse the specimen in water in its service position as specified by client.
Test condition: The lowest point of enclosures with a height is located 1000 mm below the surface of the water
Test duration: 60 minutes
Test Device: As shown in photo 3, 4

- Examine the protection against ingress water of specimen(s) after this test.

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Degrees of Protection Provided by Enclosures (IP code)

ilac-MRA TAF
Testing Laboratory
2408

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to the joint ISO-ILAC-IAF Communiqué dated January 2009).

Standard Used：	IEC 60529:1989+AMD1:1999+AMD2:2013CSV
Date of Test：	August 24, 2018
Date of Issue：	August 24, 2018
Result：	Passed（IP6X）
Report Number：	GO18082305

Reviewer：

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