

# IFD6503

## INSTRUCTION SHEET

### 安裝說明

### 安装说明

- ▲ USB/CAN Communication Interface
- ▲ USB/CAN 通訊轉換模組
- ▲ USB/CAN 通訊轉換模块



DVP-1226430-02

### Warning

- ✓ Please read this instruction sheet carefully before use and follow this instruction to operate the device in order to prevent damages on the device or injuries to staff.
- ✓ Switch off the power before wiring.
- ✓ This instruction sheet only provides introductory information on electrical specification, functions, wiring, trouble-shooting and the peripherals for IFD6503. Details of DeviceNet/CANopen protocol are not included in this sheet. For more information on DeviceNet/CANopen protocol, please refer to relevant references or literatures.
- ✓ IFD6503 is to be used for controlling the operating machine and equipment. In order not to damage it, only qualified professional staff familiar with the structure and operation of it can install, operate, wire and maintain it.

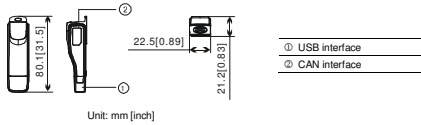
### Introduction

Thank you for choosing Delta IFD6503. IFD6503 is a USB/CAN communication interface. The power is supplied by the PC connected to it; therefore, no external power supply is required.

### Features

1. Plug and Play USB interface.
2. The USB interface supports hot plugging.
3. The CAN interface adopts RJ-45 cable interface for simple wiring.
4. Small size.
5. Serial communication speed supported: 10k, 20k, 50k, 100k, 125k, 250k, 500k, 800k, 1M (bps)

### Product Profile & Outline



### Specifications

#### Communication

Serial transmission speed	10k, 20k, 50k, 100k, 125k, 250k, 500k, 800k, 1M bps (bits per second)
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#### Electrical Specifications

Power supply	Supplied by the PC connected. No external power supply is required.
Power consumption	0.6W
Electrical isolation	DC1,000V

### Environment

Operation	0°C ~ 55°C (temperature), 50 ~ 95% (humidity), pollution degree 2
Storage	-25°C ~ 70°C (temperature), 5 ~ 95% (humidity)
Shock/vibration immunity	International standards: IEC 61131-2, IEC 68-2-6 (TEST Fc)/IEC 61131-2 & IEC 68-2-27 (TEST Ea)
Certificates	IEC 61131-2, UL508.

### Components

#### USB Interface

Used for the connection with the USB interface on the PC. USB V2.0 (full speed) compliant.

PIN	Signal	Definition
1	V <sub>Bus</sub>	V <sub>Bus</sub> and GND are standard power cables supplying 5V to equipment. D+ and D- are a pair of difference-mode cables.
2	D-	
3	D+	
4	GND	



Note: DO NOT use USB extension cable when in harsh environment.

#### CAN Interface

PIN	Signal	Definition
1	CAN_H	Signal+
2	CAN_L	Signal-
3	CAN_GND	0V DC
4	RESE_1	Reserved
5	RESE_2	Reserved
6	CAN_SHLD	Shielded cable
7	CAN_GND	0V DC
8	RESE_3	Reserved



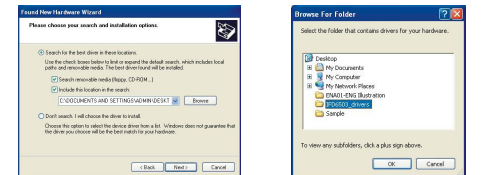
### Basic Operation

#### Before Installing the Driver

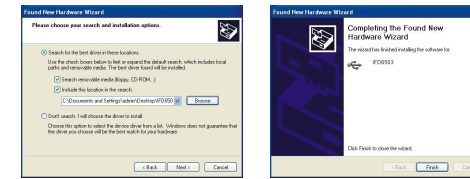
1. Download "IFD6503\_Drivers.rar" file from Delta's website: [www.delta.com.tw/industrialautomation](http://www.delta.com.tw/industrialautomation) and save it to a designated path.
2. Extract the file, and the "IFD6503\_Drivers" folder will be placed in the designated path.

#### Installing the Driver

1. Connect IFD6503 to the USB port on the PC. In normal status, the "Found New Hardware Wizard" dialog box will appear.
2. Select "Install from a list or specific location (Advanced)".
3. Select "Search for the best driver in these locations" and check the two boxes below. Click on "Next".
4. Click on "Browse" button in the previous step, and you will see the "Browse For Folder" dialog box. Choose the path where you would like to save the "IFD6503\_Drivers" folder. Click on "OK".



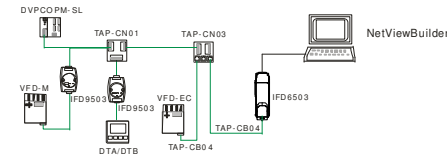
5. After all the settings are set, return to the "Found New Hardware Wizard" dialog box. Click on "Next".
6. Click on "Finish" to complete the installation.



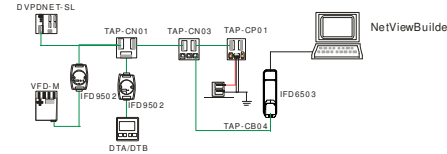
7. The USB indicator on IFD6503 will then be ON in green and the CAN indicator ON in yellow.

### Connecting IFD6503 to CAN Bus

#### Connecting IFD6503 to CANopen Network



#### Connecting IFD6503 to DeviceNet Network



### LED Indicators & Troubleshooting

There are two LED indicators on IFD6503. USB LED displays the working status of the USB interface; CAN LED displays the working status of the CAN interface.



#### USB LED

LED status	Indication	How to correct
OFF	The PC cannot identify IFD6503.	Install the driver.
Green light ON	Connection to USB is successful.	--
Green light flashing	USB data are communicating.	--

#### CAN LED

LED status	Indication	How to correct
OFF	Initialization of the CAN interface is successful.	--
Yellow light ON	1. CAN bus is initializing. 2. CAN bus is BUS-OFF. 3. Error in CAN bus.	1. The yellow light is ON because the CAN bus has not initialized when IFD6503 is plugged into the PC. The yellow light will be OFF when the initialization is completed. 2. The yellow light will flash when there are data communicating on the CAN bus. 3. When many errors occurring in the CAN bus, the CAN bus communication will be cut off, and the yellow light will be constantly ON.
Yellow light flashing	CAN data are communicating.	--

### 注意事項

- ✓ 使用前請務必仔細閱讀本使用手冊，並依照本手冊指示進行操作，以免造成產品受損或人員受傷。
- ✓ 配線時請務必關閉電源。
- ✓ 本使用說明書僅供電氣檢點、功能規格、安裝配線、故障排除及周邊裝置部分說明，本使用說明書僅作為 IFD6503 操作指南供人員參考。DeviceNet/CANopen 協定的詳細內容這裏不作介紹，如果讀者想瞭解更多 DeviceNet/CANopen 協定的內容，請參閱相關專業文章或書籍資料。
- ✓ 本產品用於控制邏輯中的機械及設備，為避免損壞本產品，只有合格且熟悉本產品結構及操作的專業人員才可進行本產品的安裝、操作、配線及維護。

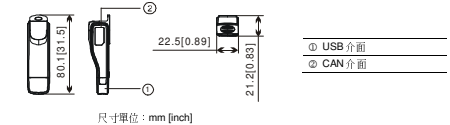
### 產品簡介

感觸使用台灣 IFD6503 通訊轉換模組，IFD6503 定義為 USB 轉 CAN 轉換模組，由所連接的電腦提供電源，不需外接電源。

#### 功能特色

1. USB 介面隨時插用
2. USB 介面支援熱插拔
3. CAN 介面採用 RJ-45 網路線介面，便於使用者接線。
4. 體積小，方便使用。
5. 支援 10k、20k、50k、100k、125k、250k、500k、800k、1M (bps) 的編流排序列傳輸速率。

#### 產品外觀及各部介紹



### 功能規格

#### 通訊

串列傳輸速度	10k: 20k: 50k: 100k: 125k: 250k: 500k: 800k: 1M bps (位元 / 秒)
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#### 電氣規格

電源需求	由所連接電腦提供電源，不需外接電源。
消耗功率	0.6W
電氣隔離	DC1,000V

#### 環境規格

操作溫度	0°C ~ 55°C (溫度) · 50 ~ 95% (濕度) · 污染等級 2
儲存溫度	-25°C ~ 70°C (溫度) · 5 ~ 95% (濕度)
耐振動 / 衝擊	國際標準規範 IEC 61131-2、IEC 68-2-6 (TEST Fc)/IEC 61131-2 & IEC 68-2-27 (TEST Ea)
標準	IEC 61131-2、UL508 標準

### 各部分元件介紹

#### USB 介面

用於與電腦的 USB 介面連接，符合 USB V2.0 全速 (full speed) 規格。

接腳	訊號	敘述
1	V <sub>Bus</sub>	V <sub>Bus</sub> and GND 是標準電源線，為設備提供 5V 電源；D+和 D-為一對差訊號線。
2	D-	
3	D+	
4	GND	



註：當使用環境惡劣時，不建議使用 USB 延長線。

#### CAN 介面

接腳	訊號	敘述
1	CAN_H	Signal+
2	CAN_L	Signal-
3	CAN_GND	0V DC
4	RESE_1	保留
5	RESE_2	保留
6	CAN_SHLD	遮罩線
7	CAN_GND	0V DC
8	RESE_3	保留



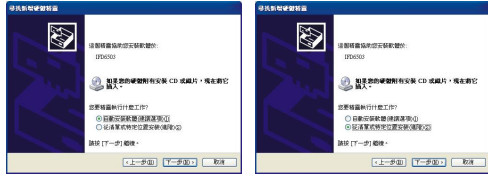
## 4 基本操作

### ■ 安裝驅動前準備工作

1. 從達爾斯網站 [www.delta.com.tw/industrialautomation](http://www.delta.com.tw/industrialautomation) 下載驅動程式文件 **IFD6503\_Drivers.rar** 並儲存至指定路徑。
2. 解壓縮完畢後，**IFD6503\_Drivers** 資料夾會被放置在指定路徑。

### ■ 安裝驅動

1. 將 IFD6503 連接至電腦的 USB 通訊口。正常情況
2. 選擇「從清單或特定位置安裝 (高級) (S)」，下一會彈出「尋找新增硬體精靈」對話方塊。



3. 點選「下一步」。
4. 點選「瀏覽(B)」按鈕，彈出「瀏覽資料夾」對話方塊，選擇 **IFD6503\_Drivers** 資料夾存放的路徑。



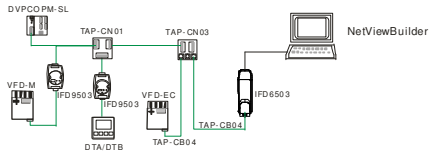
5. 設定完成後，點選「確定」，返回「尋找新增硬體精靈」對話方塊。
6. 選擇「下一步(N)」，為 IFD6503 安裝驅動程式，點選「完成」。



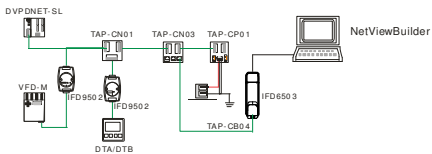
7. 完成 IFD6503 的驅動程式安裝後，點選「完成」，此時 IFD6503 的 USB 指示燈亮綠色，CAN 指示燈亮黃色。

## 6 將 IFD6503 連接至 CAN 匯流排

### ■ IFD6503 與 CANopen 網路設備連接



### ■ IFD6503 與 DeviceNet 網路設備連接



## 6 LED 燈指示說明及故障排除

IFD6503 模組有兩個 LED 指示燈，USB LED 顯示 IFD6503 的 USB 介面的工作狀態；CAN LED 顯示 IFD6503 之 CAN 介面的工作狀態。



### ■ USB 指示燈說明

LED 燈狀態	顯示說明	處理方法
燈滅	電腦無法識別 IFD6503 設備	正常安裝驅動程式
綠燈亮	插入 USB 主機成功	無需處理
綠燈閃爍	USB 資料通訊中	無需處理

### ■ CAN 指示燈說明

LED 燈狀態	顯示說明	處理方法
燈滅	CAN 介面初始化成功	無需處理
黃燈亮	1. CAN 匯流排正在初始化 2. CAN 匯流排 BUS-OFF 3. CAN 匯流排有錯誤	1. IFD6503 插上 PC 主機時，CAN 匯流排未初始化，因此黃燈會常亮，當被初始化後，黃燈即滅。 2. 當 CAN 匯流排有資料通訊時，黃燈將會閃爍。 3. 當 CAN 匯流排錯誤較多時，IFD6503 的 CAN 通訊功能將會被關閉，此時黃燈常亮。
黃燈閃爍	CAN 資料通訊中	無需處理

## 7 注意事項

- ✓ 使用前請務必仔細閱讀本使用手冊，並依照本手冊指示進行操作，以免造成產品損壞或人員受傷。
- ✓ 配線時請務必關閉電源。
- ✓ 本使用說明書仅提供电气规格、功能规格、安装配线、故障排除及周邊裝置部分說明，本使用說明書仅作为 IFD6503 操作指南和入门参考。DeviceNet/CANopen 协议的详细内容这并不作介绍，如果想了解更多 DeviceNet/CANopen 协议的内容，请参阅相关专业文章或书籍资料。
- ✓ 本产品用来控制运转中的机械及设备，为避免损坏本产品，只有合格且熟悉本产品结构及操作的专业人员才可进行本产品的安装、操作、配线及维护。

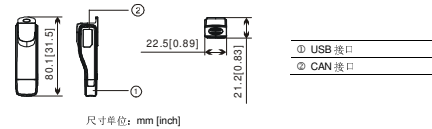
## 8 产品简介

感谢您使用台达 IFD6503 通讯模块，IFD6503 定义为 USB 转 CAN 转换模块，由所连接电脑提供电源，不需要外接电源。

### ■ 功能特色

1. USB 接口随插即用
2. USB 接口支持热插拔
3. CAN 接口采用 RJ-45 网络线接口，便于使用者接线。
4. 体积小，方便使用。
5. 支持 10k、20k、50k、100k、125k、250k、500k、800k、1M (bps) 的总线传输速率。

### ■ 产品外观及各部介绍



## 9 功能规格

### ■ 通讯

串行传输速度	10k、20k、50k、100k、125k、250k、500k、800k、1M bps (位 / 秒)
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### ■ 电气规格

电源需求	由所连接电脑提供电源，不需外接电源。
消耗功率	0.6W
电气隔离	DC1,000V

## 10 环境规格

操作温度	0°C ~ 55°C (湿度: 50 ~ 95% (湿度)、污染等级 2)
储存温度	-25°C ~ 70°C (湿度: 5 ~ 95% (湿度))
非震动 / 冲击	国际标准规范 IEC 61131-2、IEC 68-2-6 (TEST Fc)/IEC 61131-2 & IEC 68-2-27 (TEST Ea)
标准	IEC 61131-2、UL508 标准

## 11 各部分元件介绍

### ■ USB 接口

用于与电脑的 USB 接口连接，符合 USB V2.0 全速 (full speed) 规格。

引脚	信号	叙述
1	V <sub>bus</sub>	V <sub>bus</sub> 和 GND 是标准电源线，为设备提供 5V 电压。D+ 和 D- 为一对差模信号线
2	D-	
3	D+	
4	GND	



注：当使用环境恶劣时，不建议使用 USB 延长线。

### ■ CAN 接口

引脚	信号	叙述
1	CAN_H	Signal+
2	CAN_L	Signal-
3	CAN_GND	0V DC
4	RESE_1	保留
5	RESE_2	保留
6	CAN_SHLD	屏蔽线
7	CAN_GND	0V DC
8	RESE_3	保留



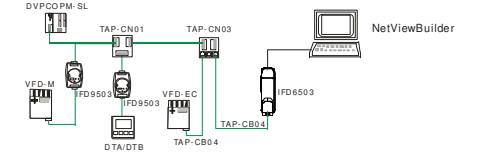
5. 设置完成后，点击「确定」按钮，返回「找到新的硬件向导」对话框。
6. 选择「下一步(N)」按钮，为硬件设备 IFD6503 安装驱动程序。



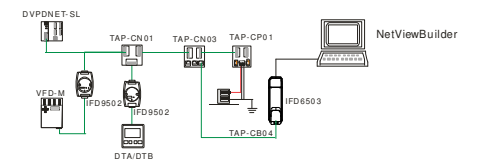
7. 完成 IFD6503 的驱动程序安装后，点击「完成」按钮，此时 IFD6503 的 USB 指示灯亮绿色，CAN 指示灯亮黄色。

## 12 连接 IFD6503 于 CAN 总线

### ■ IFD6503 与 CANopen 网络设备连接



### ■ IFD6503 与 DeviceNet 网络设备连接



## 13 LED 灯指示说明及故障排除

IFD6503 模块有两个 LED 指示灯，USB LED 用来显示 IFD6503 的 USB 接口的工作状态；CAN LED 用来显示 IFD6503 的 CAN 接口的工作状态。



### ■ USB 指示灯说明

LED 灯状态	显示说明	处理方法
灯灭	电脑不识别 IFD6503 设备	正常安装驱动程序
绿灯亮	插入 USB 主机成功	无需处理
绿灯闪烁	USB 数据通讯中	无需处理

### ■ CAN 指示灯说明

LED 灯状态	显示说明	处理方法
灯灭	CAN 接口初始化成功	无需处理
黄灯亮	1. CAN 总线正在初始化 2. CAN 总线 BUS-OFF 3. CAN 总线有错误	1. IFD6503 插上 PC 主机时，CAN 总线未初始化，因此黄灯会常亮，当被初始化后，黄灯即灭掉。 2. 当 CAN 总线有数据通讯时，黄灯将会闪爍。 3. 当 CAN 总线错误较多时，IFD6503 的 CAN 通讯功能将会被关闭，此时黄灯将常亮。
黄灯闪烁	CAN 数据通讯中	无需处理

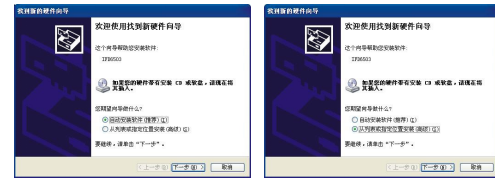
## 4 基本操作

### ■ 安装驱动前准备工作

1. 从达爾斯網站 [www.delta.com.tw/industrialautomation](http://www.delta.com.tw/industrialautomation) 下載驅動程式文件 **IFD6503\_Drivers.rar** 并保存至指定路徑。
2. 解壓縮完畢後，**IFD6503\_Drivers** 文件夾會被放置在指定路徑。

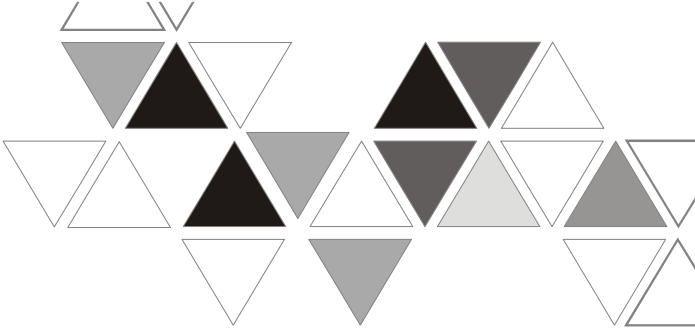
### ■ 安裝驅動

1. 將 IFD6503 連接至電腦的 USB 通訊口。正常情況
2. 選擇「从列表或指定位置安装 (高级) (S)」选项，下一会弹出「找到新的硬件向导」对话框。



3. 点击「下一步」按钮。
4. 点击「浏览(B)」按钮，弹出「浏览文件夹」对话框，选择 **IFD6503\_Drivers** 文件夹存放的路径。





## IFD6503

### BILGI DÖKÜMANI

#### ▲ USB/CAN Haberleşme Arabirimi



<http://www.delta.com.tw/industrialautomation>

DVP-1226460-02



### Uyarı

TÜRKÇE

- ✓ Lütfen ürünü kullanmadan önce bu bilgi dökümanını okuyunuz. Üründe oluşabilecek hataları ve kişisel zararları önlemek için ürünü kullanırken dökümanda belirtilenleri uygulayınız.
- ✓ Bağlantı yapmadan önce enerjiyi kesiniz.
- ✓ Bu bilgi dökümanı sadece IFD6503 ürününün elektriksel özellikleri, fonksiyonları, bağlantısı, arıza tespiti ve çevre donanımları hakkında bilgi sağlar. DeviceNet/CANopen protokolü bu dökümanda mevcut değildir. DeviceNet / CANopen protokolü ile ilgili detaylı bilgi için ilgili manüelleri inceleyiniz.
- ✓ IFD6503 makina ve teçhizatların kontrolü için kullanılır. Ürüne zarar gelmesini önlemek için kurulumu, çalışması, bağlantısı ve bakımı sistem yapısına hakim yetkili kişiler tarafından yapılmalıdır.

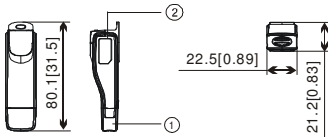
### Önsöz

Delta IFD6503 ürününü seçtiğiniz için teşekkürler. IFD6503 ürünü bir USB/CAN haberleşme arabirimidir. Beslemesi bağlı olduğu PC tarafından sağlandığı için; harici güç kaynağına gereksinim duymaz.

#### Özellikler

1. Tak ve Çalıştır USB arabirim.
2. USB arabirim PC enerjili iken takılıp çıkartılabilir. ( hot plugging).
3. Kolay bağlantı için CAN arabirimi RJ-45 kablo ile kullanılabilir.
4. Küçük Boyutlu.
5. Desteklediği seri haberleşme hızları: 10k, 20k, 50k, 100k, 125k, 250k, 500k, 800k, 1M (bps)

#### Ürün Profili & Taslağı



Birim: mm [inch]

- ① USB arabirim
- ② CAN arabirim

### Özellikler

#### Haberleşme

Seri iletim hızı	10k, 20k, 50k, 100k, 125k, 250k, 500k, 800k, 1M bps (bits per second)
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#### Elektrik Özellikleri

Power supply	Bağlı olunan PC tarafından beslenir. Harici beslemeye gereksinim duymaz.
Güç Tüketimi	0.6W
Elektriksel izolasyon	DC1,000V

### Çalışma Ortamı

Çalışma	0°C ~ 55°C (sıcaklık), 50 ~ 95% (rutubet), kirlenme derecesi 2
Saklama	-25°C ~ 70°C (sıcaklık), 5 ~ 95% (rutubet)
Şok/titreşim bağlılığı	Uluslararası standartlar: IEC 61131-2, IEC 68-2-6 (TEST Fc)/IEC 61131-2 & IEC 68-2-27 (TEST Ea)
Sertifikalar	IEC 61131-2, UL508.

### Komponentler

#### USB Arabirim

PC üzerinde USB arabirimi ile bağlantı için kullanılır. USB V2.0 (tam hız) uyumlu.

PIN	Sinyal	Açıklama
1	V <sub>BUS</sub>	V <sub>BUS</sub> ve GND donanımına 5V sağlayan standart besleme kablolarıdır. D+ ve D- fark mod data sinyal için kablo çiftidir.
2	D-	
3	D+	
4	GND	



Not: Kötü ortam koşullarında USB uzatma kablosu kullanmayınız.

#### CAN Arabirim

PIN	Sinyal	Açıklama
1	CAN_H	Sinyal+
2	CAN_L	Sinyal-
3	CAN_GND	0V DC
4	RESE_1	Reserve
5	RESE_2	Reserve
6	CAN_SHLD	Ekranlı kablo
7	CAN_GND	0V DC
8	RESE_3	Reserve



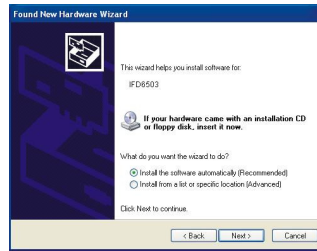
### Temel Çalışma

#### Sürücü Yazılımı Kurmadan Önce

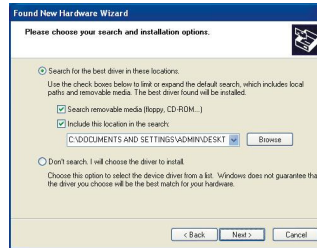
1. Delta'nın [www.delta.com.tw/industrialautomation](http://www.delta.com.tw/industrialautomation) internet sitesinden "IFD6503\_Drivers.rar" dosyasını indirin ve gösterilen dizine kaydedin.
2. Dosyayı açın ve "IFD6503\_Drivers" dosyasını gösterilen dizine kopyalayın.

#### Sürücü Yazılımı Kurulumu

1. IFD6503 ünitesi PC'ye USB portundan bağlanır. Normal şartlarda "Donanım Güncelleme Sihirbazı" penceresi görünür.
2. "Listeden ya da belirli bir konumdan yükle (Gelişmiş)" seçilir.



3. Açılan pencerede "Belirtilen konumda en iyi sürücü ara" seçildikten sonra iki kutucukta işaretlenir.
4. Gözet butonuna basılır ve Klasöre Gözet penceresinden "IFD6503\_Drivers" olduğu klasör seçilir. Ardından "OK" butonuna basılır.



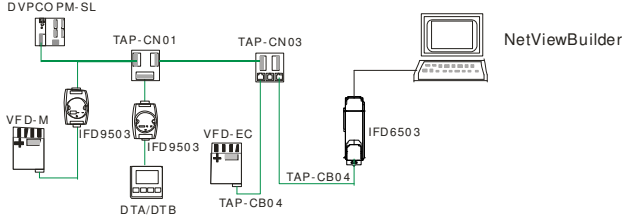
5. Bu işlemlerden sonra "Donanım Güncelleme Sihirbazına" geri dönülür. Ardından "İleri" butonuna basılır.
6. Kurulumu tamamlamak için "Son" butonuna basılır.



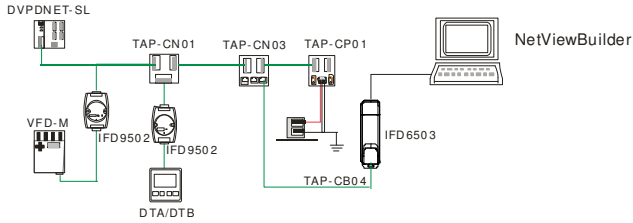
7. Daha sonra IFD6503 üzerindeki USB indikatör yeşil renkte ON ve CAN indikatör sarı renkte ON olur.

## ⑥ IFD6503 ünitesini CAN Bus Bağlama

### ■ CANopen Network'e IFD6503 bağlantısı



### ■ DeviceNet Network'e IFD6503 bağlantısı



## ⑥ LED İndikatörler & Arıza Tespiti

IFD6503 üzerinde 2 adet LED vardır. USB LED'i USB arabiriminin çalışma durumunu; CAN LED ise CAN arabiriminin çalışma durumunu gösterir.



### ■ USB LED

LED durumu	Anlamı	Yapılması Gerekenler
OFF	PC, IFD6503 ünitesini algılamıyor.	Driver kurulumunu yapınız.
Yeşil ışık ON	USB bağlantısı başarılı.	--
Yeşil ışık flash	USB data haberleşiyor.	--

### ■ CAN LED

LED durumu	Anlamı	Yapılması Gerekenler
OFF	CAN arabirim başlatılması başarılı.	--
Sarı ışık ON	1. CAN bus başlatılmıyor. 2. CAN bus BUS-OFF. 3. CAN bus'da hata.	1. IFD6503 ünitesi PC'ye takıldığı zaman CAN bus başlatılmaz ise sarı ışık ON olur. Ürün düzgün başlatıldığı zaman sarı ışık OFF olur. 2. CAN bus üzerinde data iletişimi olduğu zaman sarı ışık flash yapar. 3. CAN bus üzerinde birçok hata oluştuğu zaman, CAN bus haberleşme kesilir ve sarı ışık sürekli ON olur.
Sarı ışık flash	CAN data haberleşiyor.	--

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