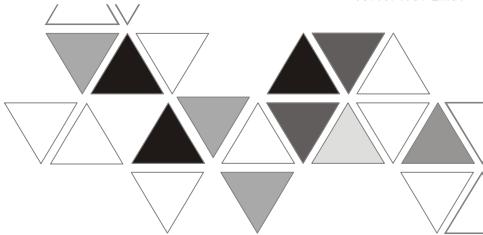




2008-12-08



5011674901-EM01



IFD9506 INSTRUCTION SHEET

安裝說明 安装说明

- △ Ethernet Communication Module
- △ Ethernet 從站通訊模組
- △ Ethernet 从站通讯模块



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

Warning

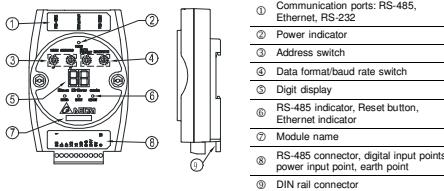
- This instruction sheet only provides introductory information on electrical specification, installation and wiring.
 ✓ Switch off the power before wiring. DO NOT touch any terminal when the power is switched on.
 ✓ IFD9506 is an OPEN-TYPE device and therefore should be installed in an enclosure free of airborne dust, humidity, electric shock and vibration. The enclosure should prevent non-maintenance staff from operating the device (e.g. key or specific tools are required to open the enclosure) in case danger and damage on the device may occur.

Introduction

Features

1. Auto-detects 10/100 Mbps transmission speed; MDI/MDI-X auto-detection.
2. The monitor table temporarily stores the monitored data for the user to fast save or acquire the data.
3. Supports Modbus TCP protocol (supports Master and Slave mode)
4. Able to send out emails after being triggered.
5. The station address, RS-485 communication format and baud rate can be set up externally.
6. The communication parameters can be set up through Web.

Product Profile & Outline



Specifications

Ethernet Interface

Interface	RJ-45 with Auto MDI/MDIX
Transmission method	Ethernet Type II
Transmission cable	Category 5e, 100m (Max)
Transmission speed	10/100 Mbps Auto-Detection
Network protocol	ICMP, IP, TCP, UDP, DHCP, SMTP, MODBUS OVER TCP/IP, Delta Configuration

RS-485 Connector

Interface	RJ-45
Transmission method	RS-485
Transmission speed	110, 150, 300, 600, 1,200, 2,400, 4,800, 9,600, 19,200, 38,400, 57,600, 115,200
Communication format	Stop bit: 1.2 Parity bit: None, Odd, Even Data bit: 7,8 ASCII/RTU
Communication protocol	Modbus, User Define

RS-232 Connector

Interface	Mini Dim
Transmission method	RS-232
Transmission speed	110, 150, 300, 600, 1,200, 2,400, 4,800, 9,600, 19,200, 38,400, 57,600, 115,200
Communication format	Stop bit: 1.2 Parity bit: None, Odd, Even Data bit: 7,8 ASCII/RTU
Communication protocol	Modbus, Delta Configuration, User Define
Transmission cable	DVPACAB215 / DVPACAB230 / DVPACAB2A30

Terminal Block

Interface	Feed-through terminal 10PIN
Transmission method	RS-485
Transmission distance	1,200m
Transmission speed	110, 150, 300, 600, 1,200, 2,400, 4,800, 9,600, 19,200, 38,400, 57,600, 115,200
Communication format	Stop bit: 1.2 Parity bit: None, Odd, Even Data bit: 7,8 ASCII/RTU
Communication protocol	Modbus, User Define

Electrical Specifications

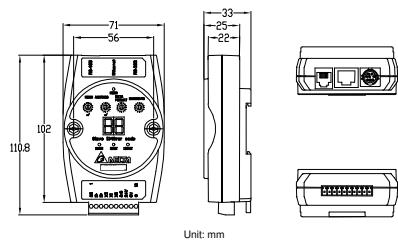
Power voltage	24V DC (-15% ~ -20%) supplied by feed-through terminal
Power consumption	3W
Insulation voltage	500V
Weight	140g

Environment

Noise immunity	ESD (IEC 61131-2, IEC 61000-4-2): 8kV Air Discharge EFT (IEC 61131-2, IEC 61000-4-4): Power Line: ±2kV, Digital Input: ±2kV, Communication I/O: ±2kV RS (IEC 61131-2, IEC 61000-4-3): 80MHz ~ 1GHz, 10V/m, 1.4GHz ~ 2.0GHz, 10V/m Conducted Susceptibility Test (EN61000-4-6, IEC61131-2 9.10): 150KHz ~ 80MHz, 3V/m Surge Test (Bwave IEC61132-2, IEC61000-4-5): Power line 0.5kV DM, Ethernet 0.5kV CM, RS-485 0.5kV CM
Operation/storage	Operation: -0°C ~ 55°C (temperature), 50 ~ 95% (humidity), pollution degree 2 Storage: -25°C ~ 70°C (temperature), 5 ~ 95% (humidity)
Vibration/shock immunity	International standards: IEC61131-2, IEC60950-2-6 (TEST Fc)/IEC61131-2 & IEC 68-2-27(TEST Ea)
Certificates	CE, UL

Installation

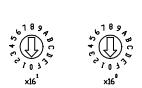
Dimension



Unit: mm

Address Switch

Switch setting	Content
01 ... F7	Valid Modbus communication address



Data Format Switch

Switch setting	Format	Switch setting	Format
0	7-N-1	8	7-N-2
1	8-N-1	9	8-N-2
2	7-O-1	A	7-O-2
3	8-O-1	B	8-O-2
6	7-E-1	E	7-E-2
7	8-E-1	F	8-E-2



Baud Rate Switch

Switch setting	Baud rate (bps)	Switch setting	Baud rate (bps)
1	110	7	4,800
2	150	8	9,600
3	300	9	19,200
4	600	A	38,400
5	1,200	B	57,600
6	2,400	C	115,200



RS-485 PIN Definition

PIN	Signal	Definition	PIN	Signal	Definition
1	--	N/C	4	D-	Negative pole for data
2	--	N/C	5	GND	Ground
3	D+	Positive pole for data	6	--	N/C



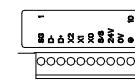
RS-232 PIN Definition

PIN	Signal	Definition	PIN	Signal	Definition
1	Tx+	Positive pole for data transmission	5	--	N/C
2	Tx-	Negative pole for data transmission	6	Rx-	Positive pole for data receiving
3	Rx+	Positive pole for data receiving	7	--	N/C
4	--	N/C	8	--	N/C



Feed-through Terminal PIN Definition

PIN	Signal	Definition
1	SG	Ground of signal
2	D-	Data-
3	D+	Data+
4	X2	Digital input 2
5	X1	Digital input 1
6	X0	Digital input 0
7	S/S	Ground of digital input
8	24V	+24V
9	0V	0V
10	--	Earth ground



LED Indicators & Trouble-Shooting

There are 3 LED indicators and a digital display on IFD9506. POWER indicator displays the status of the working power. RS-485 and LINK/ACT indicators display the connection status of the communication. The digital display shows the address of and errors in IFD9506 and the error messages from the slave.

POWER LED

LED status	Indication	How to correct
OFF	No communication or RS-485 connection is abnormal.	1. If the LED is off during the communication, check if the RS-485 in IFD9506 is normally connected. 2. Check at least 1 node on the network is communicating normally.
Constantly ON	Abnormal RS-485 connection.	Switch D+ and D-.

RS-485 LED

LED status	Indication	How to correct
OFF	No power, or no network connection	1. Check the power of IFD9506 and make sure the network connection is normal. 2. Re-power IFD9506. If the error still exists, send your IFD9506 back to the factory for repair.
Green light ON	The connection is normal, but no data transmission.	--
Green light flashes	The data transmission is normal.	--

Codes in Digital Display

Code	Indication	How to correct
01 ~ F7	The node address of IFD9506 when in normal operation	--
F0	Returning to default setting	--
F1	IFD9506 is booting	--
F2	Working power in low voltage	Check if the working power is normal. 1. Re-power IFD9506. If the error still exists, try step 2. 2. Reset IFD9506. If the error still exists, send it back to the factory for repair.
F3	Internal memory error	1. Re-power IFD9506. If the error still exists, try step 2. 2. Reset IFD9506. If the error still exists, send it back to the factory for repair.
F4	Internal error caused by manufacturing in the factory	1. Re-power IFD9506. If the error still exists, try step 2. 2. Reset IFD9506. If the error still exists, send it back to the factory for repair.
F5	Network connection error	Check if IFD9506 is normally connected to the network.
F6	Full number of devices connected in the network	Check if the number is too much.
F7	UART setting error.	Check if the RS-485, RS-232 communication format is correct. Check Alarm Input Point 1.
E1	Alarm 1 triggered	Check Alarm Input Point 2.
E2	Alarm 2 triggered	Check Alarm Input Point 3.
E3	Alarm 3 triggered	Check Alarm Input Point 4.
01	Incorrect MODBUS function	Check if the Modbus instruction is correct.
02	Incorrect address	Check if the Modbus instruction is correct.
03	Incorrect data	Check if the Modbus instruction is correct.
04	CRC error	1. Check if IFD9506 and RS-485 is connected normally. 2. Check if the series transmission speed is consistent with that of other nodes on the network.
0B	No response from the station	1. Check if IFD9506 and RS-485 is connected normally. 2. Check if the series transmission speed is consistent with that of other nodes on the network.

注意事項

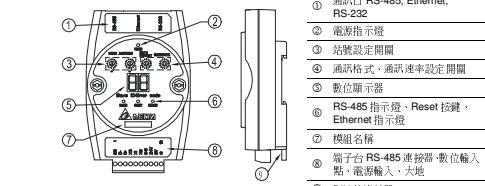
- ✓ 此安裝手冊只提供電氣規格、一般規格、安裝及配線等。
- ✓ 請勿閉鎖電源。請勿在上電時觸摸任何端子。
- ✓ 本機為開放型 (OPEN TYPE) 機殼，因此使用者使用本機時，必須得之安處於其防塵、防潮及免於電擊、衝擊之外的外殼配線盒內，另須具備隔離措施（如：特殊之工具或鑰匙才可打開），並防止非授權人員操作或意外衝擊本體，造成危險及損壞。

產品簡介

功能特色

1. 自動偵測 10/100 Mbps 傳輸速率；MDI/MDI-X 自動偵測。
2. 提供 Monitor table 可暫存監控的資料，讓使用者快速存取。
3. 支援 Modbus TCP 協定 (支援 Master 和 Slave 模式)
4. 紅綠燈發送後發送電子郵件。
5. 可由外箱設定沾濕；RS-485 通訊格式、速率。
6. 可由 Web 設定通訊參數。

產品外觀



功能規格

Ethernet 連接器

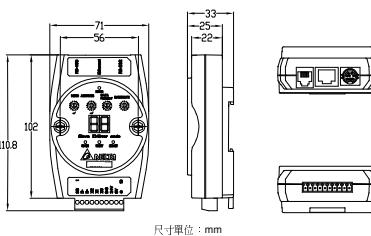
接頭	RJ-45 with Auto MDI/MDIX
傳輸方式	Ethernet Type II
傳輸距離	Category 5e, 100m (Max)
傳輸速率	10/100 Mbps Auto-Detection
通訊協定	ICMP, IP, TCP, UDP, DHCP, SMTP, MODBUS OVER TCP/IP, Delta Configuration

RS-232 連接器

接頭	Mini Dim
傳輸	

③ 安装

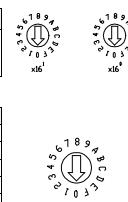
■ 外观



尺寸单位: mm

■ 位址開關設置

開關設置	說明
01 ... F7	有效的 Modbus 通訊位址



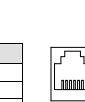
■ 通訊格式開關設置

旋鈕值	通訊格式	旋鈕值	通訊格式
0	7-N-1	8	7-N-2
1	8-N-1	9	8-N-2
2	7-O-1	A	7-O-2
3	8-O-1	B	8-O-2
6	7-E-1	E	7-E-2
7	8-E-1	F	8-E-2



■ 通訊速率開關設置

旋鈕值	速率 (bps)	旋鈕值	速率 (bps)
1	110	7	4,800
2	150	8	9,600
3	300	9	19,200
4	600	A	38,400
5	1,200	B	57,600
6	2,400	C	115,200



■ RJ-11 連接器的腳位定義

腳位	訊號	敘述	腳位	訊號	敘述
1	--	N/C	4	D-	資料負極
2	--	N/C	5	GND	參考地
3	D+	資料正極	6	--	N/C



■ RJ-45 連接器的腳位定義

腳位	訊號	敘述	腳位	訊號	敘述
1	Tx+	傳輸資料正極	5	Rx-	接收資料負極
2	Tx-	傳輸資料負極	6	Rx+	接收資料正極
3	Rx+	接收資料正極	7	--	N/C
4	--	N/C	8	--	N/C



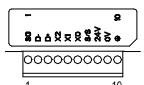
■ RS-232 連接器的腳位定義

腳位	訊號	敘述	腳位	訊號	敘述
1	--	N/C	5	Tx+	傳輸資料正極
2	--	N/C	6	Tx-	傳輸資料負極
3	--	N/C	7	--	N/C
4	Rx+	接收資料正極	8	--	N/C



■ 歐式端子台的腳位定義

腳位	訊號	敘述	腳位	訊號	敘述
1	--	N/C	5	Tx+	傳輸資料正極
2	--	N/C	6	Tx-	傳輸資料負極
3	--	N/C	7	--	N/C
4	Rx+	接收資料正極	8	--	N/C
5	--	N/C	9	--	N/C
6	--	N/C	10	--	N/C



④ LED 燈指示說明及故障排除

IFD9506 滲試模組有三個LED 指示燈和一個數位顯示器 - POWER LED 用來顯示 IFD9506 的工作電源是否正常; RS485 LED 與 LINK/ACT LED 用來顯示 IFD9506 的通訊連接狀態; 數位顯示器用來顯示 IFD9506 滲試模組的站號、錯誤資訊以及從站的錯誤訊息。

■ POWER 燈顯示說明

LED 燈狀態	顯示說明	處理方法
燈滅	工作電源不正常	檢查 IFD9506 工作電源是否正常
常亮	工作電源正常	無需處理

■ RS-485 燈顯示說明

LED 燈狀態	顯示說明	處理方法
燈滅	無網或 RS-485 連接不正常	1. 檢查 IFD9506 的 RS-485 連接線路正常。 2. 確認網路上至少有一個節點可以正常通訊。
常亮	RS-485 連接正常	D+ - D- 對調
快閃	RS-485 連接正常	無需處理

■ LINK/ACT 燈顯示說明

LED 燈狀態	顯示說明	處理方法
燈滅	無電源或者網路無連接	1. 檢查 IFD9506 電源並確認網路連接正常。 2. 重新上電，如果錯誤依然存在，退回工廠進行修復。
常亮	網路正常，無資料傳送	無需處理
快閃	傳送、接收資料正常	無需處理

■ 數位顯示器顯示說明

LED 燈狀態	顯示說明	處理方法
燈滅	顯示器故障	無需處理
01~F7	掃描模組的點地址 (正常工作)	無需處理
F0	回歸原廠設置	無需處理
F1	開機	無需處理
F2	工作速率選擇低	檢查 IFD9506 的工作速率是否正確
F3	內部斷路	1. 將選項模組重上電；如果錯誤依然存在，進行步驟 2。 2. 將選項模組重置，如果錯誤依然存在，退回廠房進行修復。
F4	內部接線	1. 將選項模組重新上電；如果錯誤依然存在，在進行步驟 2。 2. 將選項模組重置，如果錯誤依然存在，退回廠房進行修復。

■ RJ-11 連接器的腳位定義

腳位	訊號	敘述
1	--	N/C
2	--	N/C
3	D+	資料正極
4	--	N/C

腳位	訊號	敘述
5	--	N/C
6	GND	參考地
7	--	N/C
8	--	N/C

腳位	訊號	敘述
1	Tx+	傳輸資料正極
2	Tx-	傳輸資料負極
3	Rx+	接收資料正極
4	--	N/C

腳位	訊號	敘述
5	--	N/C
6	Rx-	接收資料負極
7	--	N/C
8	--	N/C

腳位	訊號	敘述
1	--	N/C
2	--	N/C
3	--	N/C
4	--	N/C

腳位	訊號	敘述
5	--	N/C
6	--	N/C
7	--	N/C
8	--	N/C

腳位	訊號	敘述
9	--	N/C
10	--	N/C
11	--	N/C
12	--	N/C

腳位	訊號	敘述
13	--	N/C
14	--	N/C
15	--	N/C
16	--	N/C

腳位	訊號	敘述
17	--	N/C
18	--	N/C
19	--	N/C
20	--	N/C

腳位	訊號	敘述
21	--	N/C
22	--	N/C
23	--	N/C
24	--	N/C

腳位	訊號	敘述
25	--	N/C
26	--	N/C
27	--	N/C
28	--	N/C

腳位	訊號	敘述
29	--	N/C
30	--	N/C
31	--	N/C
32	--	N/C

腳位	訊號	敘述
</tbl