

IFD9507 *Ethernet Communication Module* Application Manual



\land Warning

- ✓ Please read this instruction 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.
- ✓ IFD9507 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 for operating the enclosure) in case danger and damage on the device may occur.
- ✓ IFD9507 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 IFD9507 can install, operate, wire and maintain it.
- ✓ DO NOT connect input AC power supply to any of the I/O terminals; otherwise serious damage may occur. Check all the wirings again before switching on the power and DO NOT touch any terminal when the power is switched on. Make sure the ground terminal ⊕ is correctly grounded in order to prevent electromagnetic interference.

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1 Introduction

Thank you for choosing Delta's IFD9507 module. To correctly install and operate IFD9507, please read the manual carefully before using the module.

IFD9507 is an Ethernet communication module for remote setting and communication through Delta's DCISoft 1.01.

IFD9507 has 3 digital input contacts which will send messages to designated E-Mail addresses after being triggered. IFD9507 supports Modbus TCP communication protocol and can conduct remote monitoring by using graphic software or human machine interface. IFD9507 can be the master of Modbus TCP, sending out Modbus TCP instructions and controlling the peripheral equipment. IFD9507 supports Ethernet/IP communication protocol and can control device between Ethernet/IP protocols with Modbus protocol. IFD9507 can be a slave as well, receiving Modbus instructions sent from other masters and transferring them to another Modbus communication network or Ethernet/IP communication network through Ethernet. In addition, under MDI/MDI-X auto-detection, it does not need to jump wire in selecting the network cable. See the contents below for more detailed instructions on IFD9507 module.

1.1 Features

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

1.2 Specifications

Network interface

Item	Specification		
Interface	RJ-45 with Auto MDI/MDIX		
Number of ports	1 Port		
Transmission method	IEEE802.3, IEEE802.3u		
Transmission cable	Category 5e		
Transmission speed	10/100 Mbps Auto-Detection		
Communication protocol	ICMP, IP, TCP, UDP, DHCP, SMTP, Modbus TCP, Ethernet/IP		

Serial communication interface (COM1)

Item	Specification		
Interface	Mini Dim		
Number of ports	1 Port		
Transmission method	RS-232		
Transmission cable	DVPACAB215 / DVPACAB230 / DVPACAB2A30		
Transmission speed	110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200		
Communication protocol	Modbus, Delta Configuration, User Define		

■ Serial communication interface (COM2)

Item	Specification
Interface	RJ-11
Number of ports	1 Port
Transmission method	RS-485
Transmission speed	110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Communication protocol	Modbus, User Define

Terminal block

Item	Specification		
Interface	Feed-through terminal 10PIN		
Transmission method	RS-485		
Transmission distance	1,200m		
Transmission speed	110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200		
Communication protocol	Modbus, User Define		
Max. number of stations	32		

Environment

Item	Specification		
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 (Biwave IEC61132-2, IEC61000-4-5): Power line 0.5KV DM, Ethernet 0.5KV CM, RS-485 0.5KV CM		
Operation temperature	0° C ~ 55 $^{\circ}$ C (temperature), 50 ~ 95% (humidity), pollution degree 2		
Storage temperature	-25°C ~ 70 °C (temperature), 5 ~ 95% (humidity)		
Vibration/shock immunity\	International standards: IEC61131-2, IEC 68-2-6 (TEST Fc)/IEC61131-2 & IEC 68-2-27 (TEST Ea)		
Certificates	IEC 61131-2, UL508		

Electrical specifications

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

2 Product Profile & Outline

2.1 Dimension



Unit: mm

2.2 Product Profiles



^① Communication ports: RS-485, Ethernet, RS-232	© RS-485 indicator, Reset button, Ethernet indicator
[©] Power indicator	⑦ Module name
③ Address setup rotary switch 。	® RS-485 connector, digital input points, power input point, earth point
④ Communication format/baud rate setup switch	In all connector
© Message display	

2.3 LED Indicators

Name	Color	Function
POWER Green		Power status
RS-485	Green	Status of series communication port
LINK/ACT	Green	Status of network communication

2.4 RJ-11 PIN Definition

RJ-11 sketch	PIN.	Signal	Definition
	1		N/C
	2		N/C
	3	D+	Positive pole for data
	4	D-	Negative pole for data
6-1	5	GND	Reference
	6		N/C

2.5 RJ-45 PIN Definition

RJ-45 sketch	Definition		
	1	Tx+	Positive pole for data transmission
12345678	2	Tx-	Negative pole for data transmission
	3	Rx+	Positive pole for data receiving
	4		N/C
	5		N/C
	6	Rx-	Negative pole for data receiving
	7		N/C
	8		N/C

2.6 RS-232 PIN Definition

PIN	Signal	Content	
1		N/C	
2		N/C	
3		N/C	1
4	Rx	Reception data	5
5	Тx	Transmission data	1
6		N/C	
7		N/C	
8	GND	Ground	

2.7 Address Switch

Switch setting	Content	189	
01F7	Valid node address setting	×16 ¹	×16°

2.8 Data Format

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



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2.9 Baud Rate for Modbus Communication

Switch setting	Baud rate	Switch setting	Baud rate
1	110	7	4,000
2	150	8	9,600
3	300	9	19,200
4	600	А	38,400
5	1,200	В	57,600
6	2,400	С	115,200

2.10 Feed-through Terminal PIN Definition

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

3 Installation & Wiring

This section gives instructions on how to connect IFD9507 with other devices and how to connect IFD9507 to the network.

3.1 How to Install



3.2 How to Connect IFD9507 to Network

Connect IFD9507 to the Ethernet hub by twisted pair cable CAT-5e. IFD9507 has auto MDI/MDIX function; therefore, IFD9507 does not need to jump wire if selecting CAT-5e. The network connection between the PC and IFD9507:



4 Registers in IFD9507

4.1 Basic Registers (BR)

BR#	Attribute	Content	Explanation	Default	Latched
0	R	Model name	Set up by the system; read only. The model code of IFD9507= H'0201		Yes
1	R	Firmware version	Displaying the current firmware version in hex, e.g. V1.2 is indicated as high byte = 0x01 and low byte = 0x20.		Yes
2	R	Release date of the version	Displaying the date in decimal form. 10,000s digit and 1,000s digit are for "month"; 100s digit and 10s digit are for "day". For 1s digit: 0 = morning; 1 = afternoon. Example: 12191 indicates the version released in the afternoon of December 19.		Yes
3		Reserved			
4	R/W	Communication format	See the table of communication format setting		No
5	R/W	Baud rate	See the table of baud rate setting		No
6	R/W	Address	For setting up the station address		No
7	R	Number of DI/DO points	DI: high byte; DO: low byte	0x300	Yes
8		Reserved			
9	R	Error code	Displaying the errors. See the table of error codes.	0	No
10		Reserved			
11	R/W	Communication time-out	For setting up the communication time-out (unit: ms) in Modbus	5,000	Yes
12	R/W	Communication delay time	For setting up the minimum interval time between every communication datum	0	Yes
13	R/W	Keep alive time	For setting up the communication time-out (unit: second) in TCP connections	30	Yes
14	R/W	I/O Enable Flag	High byte is input buffer enable flag. Low byte is output buffer enable flag. The flag will be cleared when data was sent.	0	No
15	R/W	IP Index	Destination IP index	1	Yes
16~32		Reserved			
33	R/W	Returning to default setting		0	No
Symbo	I "R" refer	s to read only; "R/W	" refers to read and write.		

4.2 Explanations on BR

BR#0: Model Name

Explanations:

- 1. Model code of IFD9507 = H' 0201.
- 2. You can read the model code in the program to see if the extension module exists

BR#1: Firmware Version

Explanations:

The firmware version of IFD9507 is displayed in hex, e.g. H'0100 indicates version V1.00.

BR#2: Release Date of the Version

Explanations:

Displaying the date in decimal form. 10,000s digit and 1,000s digit are for "month"; 100s digit and 10s digit are for "day". For 1s digit: 0 = morning; 1 = afternoon.

Example: 12191 indicates the version released in the afternoon of December 19.

BR#4: Communication Format

Explanations:

BR4 low byte											
	b7 ~	b4		b3		b2 ~ b1		b0			
Explanation	Rese	rved		Stop b 0: 1 st 1: 2 st	bit top bit top bit	t ts		Parity bit 00: none 01: odd pa 11: even p	parity bit arity bit parity bit	Data bit 0: 7 data b 1: 8 data b	its its
	0000 (0)	7-N-1		0011 ((3)	8-0-	-1	1000 (8)	7-N-2	1011 (B)	8-0-2
Content	0001 (1)	8-N-1		0110 ((6)	7-E-	-1	1001 (9)	8-N-2	1110 (E)	7-E-2
	0010 (2)	7-0-1		0111 ((7)	8-E-	-1	1010 (A)	7-0-2	1111 (F)	8-E-2
						1 high	byte	<u> </u>	•	· · · · · ·	
	b7 B6 ~ b4				3		b	2	b	1	b0
Explanation	RS-485 User Define 0: Disable 1: Enable	Reser	ved	RS-23 User Define 0: Dis 1: Ena	32 e able able	CON setti 0: S E 1: S	M2 R ing erial thern erial thern	S-485 Master et Server Slave let Client	COM1 RS- 0: Delta Co 1: Modbus	-232 setting onfiguration	Mode 0: ASCII 1: RTU
	0000000	O (0)	Di	sable	Disa	able	Seri	ial Master	Delta confi	guration	ASCII
	0000001 (1)		Di	sable Disab		able	Seri	ial Master	Delta configuration		RTU
	00000010	D (2)	Di	sable Disa		able	Seri	ial Master	Modbus		ASCII
	0000001	1 (3)	Di	sable Disa		able	Seri	ial Master	Modbus		RTU
	00000100	00000100 (4)		isable Disa		able	Serial Slave		Delta configuration		ASCII
	00000101 (5)		Di	sable Disat		able	Serial Slave		Delta configuration		RTU
	00000110	D (6)	Di	sable	Disa	able	Seri	ial Slave	Modbus		ASCII
	00000111 (7)		Di	sable Disab		able	Serial Slave		Modbus		RTU
Content	00001000	00001000 (8) E		sable Enabl		ble	Serial Master		Delta configuration		ASCII
	:			:	:		:			:	:
	10000111	(135)	Er	able	Disa	able	Seri	ial Slave	Modbus	Modbus	
	10001000	(136)	Er	able	Ena	ble	Seri	ial Master	Delta confi	guration	ASCII
	10001001	(137)	Er	able	Ena	ble	Seri	ial Master	Delta confi	guration	RTU
	10001010	(138)	Er	able	Ena	ble	Seri	ial Master	Modbus		ASCII
	10001011	(139)	Er	able	Ena	ble	Seri	ial Master	Modbus		RTU
	10001100	(140)	Er	able	Ena	ble	Seri	ial Slave	Delta confi	guration	ASCII
	10001101	(141)	Er	able	Ena	ble	Seri	ial Slave	Delta confi	guration	RTU
	10001110	(142)	Er	able	Ena	ble	Seri	ial Slave	Modbus		ASCII
	10001111	(143)	Er	able	Ena	ble	Seri	ial Slave	Modbus		RTU

BR#5: Baud Rate

Explanations:

	BR#5 low byte for baud rate of COM1						
	Communication Explanation						
		Data	Baud rate (bps)	Data	Baud rate (bps)	Data	Baud rate (bps)
Content		0x01	110	0x06	2,400	0x0B	57,600
	RS-232	0x02	150	0x07	4,800	0x0C	115,200
		0x03	300	0x08	9,600		
		0x04	600	0x09	19,200		
		0x05	1,200	0x0A	38,400		
BR#5 high byte for baud rate of COM2							
Content	RS-485 same as I	ow byte					

BR#6: Address

Explanations:

For filling in or reading the Modbus address. The address will be displayed in the message display after being set up.

BR#7: Number of DI/DO Points

Explanations:

Read the number of DI/DO points from BR#7.

BR#9: Error Code

Explanations:

Error code = 0 refers to no error occurring.

Code	Indication	How to correct
01 ~ F7	Node address of the scan module (when operating normally)	
F0	Returning to default setting	
F1	IFD9507 being powered	
F2	Power supply in low voltage	Check if the power supply of the module works normally.
F3	Internal memory detection error	 Re-power IFD9507. If the error still exists, try step 2. Reset IFD9507. If the error still exists, send the module back to the factory for repair.
F4	Internal error. Manufacturing error.	 Re-power IFD9507. If the error still exists, try step 2. Reset IFD9507. If the error still exists, send the module back to the factory for repair.
F5	Network connection error	Check if IFD9507 is connected normally 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.
E1	Alarm 1 triggered	Check alarm input point 1.

Code	Indication	How to correct
E2	Alarm 2 triggered	Check alarm input point 2.
E3	Alarm 3 triggered	Check alarm input point 3.
04	CRC error	 Check if IFD9507 is normally connected to RS-485. Make sure the transmission speed of IFD9507 is consistent with that of other nodes on the network.
0B	No response from the station	 Check if IFD9507 is normally connected to RS-485. Make sure the transmission speed of IFD9507 is consistent with that of other nodes on the network.

BR#11: Communication Time-out (ms)

Explanations:

or setting up the communication time-out in Modbus. Default = 5,000ms. For example, if you wish to set up the communication time-out as 7 seconds manually, write 7,000 into BR11.

BR#12: Communication Delay Time (ms)

Explanations:

For setting up the minimum interval time between every Modbus communication datum. Default = 0ms. For example, if you wish to set up the communication delay time as 100ms manually, write 100 into BR12.

BR#13: Keep Alive Time (s)

Explanations:

For setting up the communication time-out in TCP connections. Default = 30s. For example, if you wish to set up the communication time-out as 7 seconds manually, write 7 into BR13.

BR14: I/O Enable Flag

Explanations:

Setting up input buffer and output buffer enable or not. Default = 0. Setting high byte to 1 can enable input buffer and setting low byte to 1 can enable output buffer.

BR15: IP index

Explanations:

Destination IP index is used in a TCP connection. Default = 1. In delta DCISoft, there are 4 items can be set therefore the index is 1 to 4. User can select one of items to connect with others Ethernet/IP device.

BR#33: Returning to Default Setting

Explanations:

IFD9507 will return to default setting when "1" is written into BR#33. BR#33 will be cleared to "0" automatically after the returning.

4.3 Alarm Registers (AL) in IFD9507

AL#	Attribute	Content	Explanation	Default	Latched
0	R/W	Alarm point 1		0	Yes

AL#	Attribute	Content	Explanation	Default	Latched		
1	R/W	Alarm point 2		0	Yes		
2	R/W	Alarm point 3		0	Yes		
Symbol "R" refer to read only; "R/W" refers to read and write.							

AL#0: Alarm Point 1

Explanations:

You can designate one RX extension point as the alarm point by setting up the AL register in IFD9507. When the alarm point is triggered, IFD9507 will execute its corresponding function. When b15 of AL0 is set as "1", the Gateway will execute the event immediately. When RX point is triggered, the Gateway will only execute the triggered event once.

Device		Function	Settin	g			Attribute	Default	Latched
	b15	Enabling the function	b15 = 1: Enabling b15 = 0: Disabling	b15 = 1: Enabling b15 = 0: Disabling					Yes
	b4 ~ b14	Reserved					R/W	0	No
				b3	b2				
	Turnet	Reserved	0	0					
		Type of event enabled when RX alarm point is triggered	Trigger E-Mail	0	1			_	Yes
AI #0	b2 ~ b3		Reserved	1	0		R/W	0	
7 12/10			Reserved	1	1				
			The setting will be ir thealarm function is						
	b1	Reserved	Reserved						
	b0	Condition for triggering RX	b0 = 0: Triggered wh point is low b0 = 1: Triggered wh point is high	R/W	0	Yes			

AL#1: Alarm Output 2

Explanations:

The settings for AL#1 are the same as those in AL#0.

AL#2: Alarm Output 3

Explanations:

The settings for AL#2 are the same as those in AL#0.

4.4 In buffer registers (IN) in IFD9507

IN#	Attribute	Content	Explanation	Default	Latched		
0~255	R/W	Data input buffer	Ethernet/IP input data	0	No		
Symbol "R" refers to read only; "R/W" refers to read and write.							

Explanations:

The input data was sent to Ethernet.

4.5 Out buffer registers (OUT) in IFD9507

OUT#	Attribute	Content	Explanation	Default	Latched			
0~255	6 R	Data output buffer		0	No			
Symbo	Symbol "R" refers to read only; "R/W" refers to read and write.							

Explanations:

The output data was sent to RS-485.

5 Monitoring Functions

5.1 Monitor Bit Registers (MB)

MB#	Attribute	Content	Explanation	Default	Latched		
0	R/W	Number of devicees monitored	Cache mode normally enabled (b15=1), monitoring data in max. 16 slaves.	0	Yes		
1	R/W	No. of station monitored	No. of the station to be monitored	0	Yes		
2	R/W	Address of the device monitored	Recording the address of the device monitored.	0	Yes		
3 ~ 32	R/W	No. of station monitored, address of the device monitored	No. of the station to be monitored; recording the address of the device monitored.	0	Yes		
33 ~ 200	R/W	Reserved					
201	R	Monitored value	Every MB records the value in the 16-bit device.	0	No		
202 ~ 213	R	Reserved					
214	R	Monitored status	Every MB records the status in the 16-bit device. 1 = normal; 0 = abnormal	0	No		
Symbol "R" refer to read only; "R/W" refers to read and write.							

MB#0: Number of Devices Monitored

Explanations:

For setting up the number of devices to be monitored. Max. data in 16 slaves can be monitored.

b15 is read only (Default =1: normally enabled cache mode)

MB# (Odd Number): No. of Station Monitored

Explanations:

MB#1, MB#3, MB#5...MB#33 are for setting up the station No. (0 ~ 255) to be monitored.

MB# (Even Number): Address of Device Monitored

Explanations:

MB#2, MB#4, MB#6...MB#34 are for setting up the address of the device to be monitored.

MB#201: Monitored Value

Explanations:

Every MB records the values in the 16-bit device.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Device															
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

MB#214: Monitored Status

Explanations:

Every MB records the status in the 16-bit device. 1 = normal; 0 = abnormal.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Device															
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

5.2 Monitor Word Registerss (MW)

MW#	Attribute	Content	Explanation	Default	Latched		
0	R/W	Number of devices monitored	Cache mode normally enabled (b15=1), monitoring data in max. 16 slaves.	0	YES		
1	R/W	No. of station monitored	No. of the station to be monitored	0	YES		
2	R/W	Address of the device monitored	Recording the address of the device monitored	0	YES		
3 ~ 32	R/W	No. of station monitored, address of the device monitored	No. of the station to be monitore; recording the address of the device monitored.	0	YES		
33 ~ 200	R/W	Reserved					
201 ~ 216	R	Monitored value	Every MW records the monitored value in 1 register	0	NO		
216 ~ 300	R	Reserved					
301	R	Monitored status	Every MW records the status in a 16-bit register. 1 = normal; 0 = abnormal	0	NO		
Symbol "R" refers to read only; "R/W" refers to read and write.							

MW#0: Number of Devices Monitored

Explanations:

For setting up the number of devices to be monitored. Max. data in 16 slaves can be monitored.

b15 is read only (Default =1: normally enabled cache mode)

MW# (Odd Number): No. of Station Monitored

Explanations:

MW#1, MW#3, MW#5...MW#33 are for setting up the station No. (0 ~ 255) to be monitored.

MW# (Even Number): Address of Device Monitored

Explanations:

MW32, MW34, MW#36...MW#34 are for setting up the address of the device to be monitored.

MW#201~#216: Monitored Value

Explanations:

Every MW records the values in 1 register.

13

MW#201	MW#202	MW#203	MW#204	MW#205	MW#206	MW#207	MW#208	MW#209	MW#210
Device 1	Device 2	Device 3	Device 4	Device 5	Device 6	Device 7	Device 8	Device 9	Device 10
						-			
MW#211	MW#212	MW#213	MW#214	MW#215	MW#216				
Device	Device	Device	Device	Device	Device				

15

16

MW#301: Monitored Status

12

Explanations:

11

Every MW records the status in a 16-bit register. 1 = normal; 0 = abnormal.

14

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Device															
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

6 Setting up Device Address and Relay Address in Slave Mode (For Modbus TCP protocol only)

MIP#	Attribute	Content	Explanation	Default	Latched	
0 ~ 50	R/W	Corresponding address	Max. 100 addresses are allowed. High byte for 1 address and low byte for 1 address.	0	Yes	
50 ~ 249	R/W	Relay IP address	Total 100 IPs. Every address (1 byte) corresponds to 1 IP address (4 bytes).	0	Yes	
Symbol "R" refers to read only; "R/W" refers to read and write.						

MIP#0: Corresponding Address

Explanations:

The low bytes of MIP#0 are for the first address, and the high byte are for the second address, and so on.

MIP#51 ~ #52: Corresponding IP for the 1st Device Address

Explanations:

Example 1: If you wish to convert "192.168.0.1" into C0A80001 (hex), write A8C0 into MIP50 and H0100 into MIP51.

Example 2: Data in address 1 have to correspond to 192.168.0.8. Data in address 2 have to correspond to 192.168.0.6. To complete such settings, write H0102 into MIP0, H0800 into MIP50, HA8C0 into MIP51, H0600 into MIP52, and HA8C0 into MIP53.

7 Setting up Device Address and Other Network Settings in Slave Mode

Parameter	Explanation					
Device address	Address of Modbus device					
Relay IP address	Corresponding IP address for a device					
Priority/Time Tick	Scale of time. Unit: ms					
Timeout Tick	Scale of timeout					
Timeout	Timeout = Time Tick × Timeout Tick (Unit: ms)					

Parameter	Explanation
Multiple	Max. timeout times
Trigger	Cyclic, changing status, application object
O→T packet interval	Packet interval between originator and target
T→O packet interval	Packet interval between originator and target

8 Modbus Communication

8.1 Function Codes Supported

Function code	Explanation	Devices supported
0x02	Read discrete input	RX
0x03	Read holding register	BR, AL, MB, MW, MIP
0x06	Write single holding register	BR, AL, MB, MW, MIP
0x10	Write multiple holding register	BR, AL, MB, MW, MIP
0x17	Read/write multiple holding register	BR, AL, MB, MW, MIP

8.2 Exception Codes Supported

Exception code	Explanation
0x01	Illegal function
0x02	Illegal data addresss
0x03	Illegal data value
0x04	Slave device failure
0x0A	Gateway path unavailable
0x0B	Gateway target device failed to respond

8.3 Device Type & Device Address

		Discrete input		
Device type	Modbus address (Hex)	5-digit Modbus address (Dec)	6-digit Modbus address (Dec)	Number
RX	0x0400 ~ 0x0402	11025 ~ 11027	101025 ~ 101027	3
		Holding register		
Device type	Modbus address (Hex)	5-digit Modbus address (Dec)	6-digit Modbus address (Dec)	Number
BR	0x0000 ~ 0x00FF	40001 ~ 40256	400001 ~ 400256	64
AL	0x0200 ~ 0x0202	40513 ~ 40515	400513 ~ 400515	3
Х	0x0400 ~ 0x0402	41025 ~ 41027	401025 ~ 401027	3
IN	0x0500 ~ 0x05FF	41281 ~ 41536	401281 ~ 401536	256
OUT	0x0600 ~ 0x06FF	41537 ~ 41791	401537 ~ 401791	256
MB	0x2000 ~ 0x20FF	48193 ~ 48448	408193 ~ 408448	256
MW	0x2200 ~ 0x23FF	48705 ~ 49216	408705 ~ 409216	512
MIP	0x2400 ~ 0x24FF	49217 ~ 49471	409217 ~ 409471	256

9 Ethernet/IP Communication

9.1 Service code supported

Service Code	Object	Service	Description
0x01	ID Message Router Object Assembly Object Connection Manager Object BR AL MB MW TCP Interface TCP Link	Get_Attribute_All	Returns a predefined listing of this objects attributes
0x05	ID	Reset	Invokes the Reset service for the device.
0x0E	ID Message Router Object Assembly Object Connection Manager Object BR AL MB MW TCP Interface TCP Link	Get_Attribute_Single	Return the contents of the specified attribute.
0x10	Assembly Object BR AL MB MW TCP Interface	Set_Attribute_Single	Used to modify an attribute.
0x4E	Connection Manager Object	Forward_Close	Closes a connection.
0x54	Connection Manager Object	Forward_Open	Opens a connection, maximum data size is 511 bytes.

9.2 Object supported

Object Name	Class ID Code	Instance Code	Function Description	Object Type	Attribute
ID	0x01	0x01	Identity	Attribute	Get
Message Router Object	0x02	0x01	Router Command		
Accombly Object	0x04	0x64	Assembly	GO	Set
Assembly Object	0x04	0x65	Input device object	GI	Get
Connection Manager Object	0x06	0x01	Connection monitor object		
RX			Digital input	Discrete input	Get
BR	0x64	0x01	Basic registers	Attribute	Get/Set
AL	0x64	0x02	Alarm function	Attribute	Get/Set
MB	0x64	0x03	Bit monitor	Attribute	Get/Set
MW	0x64	0x04	Register monitor	Attribute	Get/Set
TCP Interface	0xF5	0x01	TCP/IP Interface Object	Attribute	Get/Set

Object Name	Class ID Code	Instance Code	Function Description	Object Type	Attribute
TCP Link	0xF6	0x01	TCP/IP Link Object	Object	Get

9.3 CIP General Status Code (Reference Volume 1:CIP Common Specification Appendix B)

General		
Status Code	Status Name	Description of Status
(in hex)		
00	Success	Service was successfully performed by the object specified.
01	Connection failure	A connection related service failed along the connection path.
02	Resource unavailable	Resources needed for the object to perform the requested service were unavailable
04	Path segment error	The path segment identifier or the segment syntax was not understood by the processing node. Path processing shall stop when a path segment error is encountered.
05	Path destination unknown	The path is referencing an object class, instance or structure element that is not known or is not contained in the processing node. Path processing shall stop when a path destination unknown error is encountered.
08	Service not supported	The requested service was not implemented or was not defined for this Object Class/Instance.
09	Invalid attribute value	Invalid attribute data detected
0E	Attribute not settable	A request to modify a non-modifiable attribute was received.
13	Not enough data	The service did not supply enough data to perform the specified operation.
14	Attribute not supported	The attribute specified in the request is not supported
15	Too much data	The service supplied more data than was expected
16	Object does not exist	The object specified does not exist in the device.
20	Invalid parameter	A parameter associated with the request was invalid. This code is used when a parameter does not meet the requirements of this specification and/or the requirements defined in an Application Object Specification.
26	Path Size Invalid	The size of the path which was sent with the Service Request is either not large enough to allow the Request to be routed to an object or too much routing data was included.

9.4 Connection Manager Service Request Error Codes (Reference Volume 1:CIP Common Specification Table3-5.29)

General Status	Extended Status	Explanation and Description
0x00		Service completed successfully
0x01	0x0100	CONNECTION IN USE OR DUPLICATE FORWARD OPEN
		This extended status code shall be returned when an originator is trying to make a connection to a target with which the originator may have already established a connection
0x01	0x0103	TRANSPORT CLASS AND TRIGGER COMBINATION NOT SUPPORTED
		A transport class and trigger combination has been specified which is not supported by the target. Routers shall not fail the connection based on the transport class and trigger combination. Only targets shall return this extended status code.
0x01	0x0108	INVALID NETWORK CONNECTION PARAMETER
		This extended status code shall be returned as the result of specifying a connection type, connection priority, redundant owner or fixed / variable that is not supported by the target application. Only a target node shall return this extended status code.

General Status	Extended Status	Explanation and Description
0x01	0x0114	VENDOR ID OR PRODUCT CODE MISMATCH The Product Code or Vendor Id specified in the electronic key logical segment does not match the Product Code or Vendor Id of in the target device.
0x01	0x0115	PRODUCT TYPE MISMATCH The Product Type specified in the electronic key logical segment does not match the Product Type of in the target device.
0x01	0x0116	REVISION MISMATCH The major and minor revision specified in the electronic key logical segment does not correspond to a valid revision of the target device.
0x01	0x0315	INVALID SEGMENT IN CONNECTION PATH Invalid Segment Type or Segment Value in Connection Path This extended status code is the result of a device being unable to decode the connection path. This could be caused by an unrecognized path type, a segment type occurring unexpectedly, or a myriad of other problems in the connection path.

10 Setting up the Software - DCISoft

This section gives instructions on how to set up IFD9507 by DCISoft and explanations on each setup page. IFD9507 is set up by UDP port 20006; therefore, you have to be aware of the relevant settings of the firewall. See the explanations below on the software.

- 10.1 Setting up Communication & Searching for Modules in DCISoft
 - Broadcast search
 - 1. Open DCISoft on the PC and click on the "IP Search" icon.

🚚 Delta DCISoft		
File View Iools Help		
Network Type		
Proce Modu	essing le Searching	
Time	Description	
Beady.	Ethernet BROA	ADCAST

2. You will see the network modules found.

🚊 Delta DCISoft - [IFD9507]	
Ele Yew Iools Window Help	_ # ×
Image: Network Type Image: Network Type Image: Provision of the second state of the s	_
xi Time Description	
Ready Ethernet BROADC/	AST //

3. Double-click on the module to be set up to enter the setup page. The first page overviews the basic status of the module.

DELTA IFD9507		×
Overview Basic Mail M	lonitor │ IP Filter │ EtherNet/IP │ User Define │ Security │	
Device Overview		
Module	IFD9507	
IP Address	192.168.1.3	
MAC Address	00:18:23:10:01:C8	
Firmware Version	1.22	
DI / DO Point	3 / 0	
	OK Cancel Apply	,

4. The next page is for basic network setup. Consult your ISP for relevant network settings. For other settings, see BR4~BR6 and BR11~BR13.

Module Name	IFD9507
Master Configuration	Serial Master BR #4
etwork Setup	
IP Configuration	Static Network S
IP Address	192.168.1.9
Netmask	255 . 255 . 255 . 0
Gateway	192.168.1.1
ommunication Parameter	User Define COM2 (RS-485)
ommunication Parameter COM Protocel Setup Baudrate Parity Mode	User Define COM2 (RS-485) 9600 Data Length Fven Stop Bits ASCII Station Address Module / CP
ommunication Parameter COM Protocel Setup Baudrate Parity Mode Application Protocol imer Setting	User Define COM2 (RS-485) 9600 Data Length 7 Even Stop Bits 1 ASCII Station Address 9 Modbus/TCP
ommunication Parameter COM Protocel Setup Baudrate Parity Mode Application Protocol imer Setting Keep Alive Time (s)	User Define COM2 (RS-485) 9600 Data Length 7 Even Stop Bits 1 ASCIT Station Address 9 Modbue/TCP 30 (5 - 65535 s)
ommunication Parameter COM Protocel Setup Baudrate Parity Mode Application Protocol imer Setting Keep Alive Time (s) Modbus Timeout (ms)	User Define COM2 (RS-485) 9600 Data Length Fven Stop Bits ASCII Station Address 30 (5 - 65535 s) 5000 (5 - 65535 ms) B

10.2 Basic Settings

The basic settings include parameters such as module name, network settings and serial communication.

The basics

IFD9507	
Overview Basic Mail Mo	nitor IP Filter EtherNet/IP User Define Security
Module Name	[FD9507
Master Configuration	Serial Master
Network Setup	
IP Configuration	Static
IP Address	192.168.1.9
Netmask	255 . 255 . 255 . 0
Gateway	192.168.1.1
Communication Parameter	
COM Protocol Setup	Modbus CDM2 (BS-485)
Baudrate	9600 V Data Length 7 V
Parity	Even V Stop Bits
Mode	ASCII Station Address 9
Application Protocol	Modbus/TCP
Timer Setting	
Keep Alive Time (s)	30 (5 - 65535 s)
Modbus Timeout (ms)	5000 (5 · 65535 ms)
Delay Time (ms)	0 (0 - 65535 ms)
	OK Cancel Apply

1. Module name:

There can be many IFD9507s on the network. Thus, you can set up a module name for each module to

identify the module when you need to use them.

2. Master configuration:

Open "Serial Master" mode or "Serial Slave" mode.

3. Network settings:

Enable DHCP or static IP. Consult your ISP for other relevant settings.

A. IP configuration:

There are 2 types of IP, static IP and DHCP.

Static IP: Preset or manually modified by the user.

DHCP: Automatically updated by the server. There has to be a server in the LAN.

IP	Explanation
Static	The user enters the IP address, subnet mask and gateway.
DHCP	DHCP server offers the IP address, subnet mask and gateway.

B. IP address:

IP address is the location of the equipment on the network. All equipment connected to the network has to have an IP address. Incorrect IP address will result in connection failure on the equipment or even other equipment. Ask your ISP for questions about IP address setup. The default IP for IFD9507 is 192.168.1.5.

C. Subnet mask:

Subnet mask is an important parameter for setting up the subnet, used for seeing if the destination IP and the local equipment are in the same subnet. If not, the equipment will send the packet to the gateway, and the gateway will send the packet to another subnet. Incorrect setting may cause the destination equipment unable to communication to IFD9507. To see of your setting is correct, conduct bitwise AND operations between your IP and subnet mask and destination IP and subnet mask. If the two values obtained are the same, the two IPs are in the same subnet. The default subnet mask of IFD9507 is 255.255.255.0.

D. Gateway:

Gateway is the window for two different subnets, allowing the two ends in different subnets to communicate. For example, if the LAN has to be connected to WAN, it will need a gateway to bridge the communication. The IP of the gateway has to be in the same subnet as IFD9507. The default gateway of IFD9507 is 192.168.1.254.

4. Communication parameter setting:

See how to set up BR4, BR5, and BR6.

Applicable protocol: Modbus/TCP or Ethernet/IP.

5. Timer setting:

For setting up TCP communication idle time, communication timeout and minimum delay time for every communication datum. Please refer to the settings of BR11, BR12 and BR13.

10.3 Network Settings

The first step for all the network equipment to connect to the network is to have its own IP address (Internet Protocol). The IP address is like a number for all network equipment to be identified in the network.

Setting up static IP of the PC

1. Enter Control Panel \rightarrow Network Connection \rightarrow click on "Local Area Connection".



2. You will see the "Local Area Connection Status" window. Click on "Properties".

🕹 Local Area Conne	ection Status	? 🔀
General Support		
Connection		
Status:		Connected
Duration:		00:10:59
Speed:		100.0 Mbps
Activity	Sent —	
Packets:	29,896	55,888
Properties	Disable	
		Close

3. Click on "Internet Protocol (TCP/IP)".



4. Enter "192.168.0.1" into IP address. Click on "OK" to complete the IP address setting of the PC.

Internet Protocol (TCP/IP) Prope	rties 🔹 🛛 🖓 🔀
General	
You can get IP settings assigned autor this capability. Otherwise, you need to a the appropriate IP settings.	natically if your network supports ask your network administrator for
Obtain an IP address automatical	y .
• Use the following IP address:	
IP address:	192.168.0.1
Subnet mask:	255.255.255.0
Default gateway:	192.168.0.1
Obtain DNS server address autom	atically
 Use the following DNS server add 	resses:
Preferred DNS server:	
Alternate DNS server:	
	Advanced
	OK Cancel

10.4 Setting up E-Mails

E-Mail is the abbreviation of electronic mail which transmits mails through the network. IFD9507 has E-Mail functions for the user to pre-save a segment of text message, which can be a descriptive message or error message, into the subject of the E-Mail. When the E-Mail is triggered, IFD9507 will send the messages to the user by E-Mail.

Mail settings

IFD9507					×
Overview Mail Al	Basic N arm Setup Jarm-1, X0 Jarm-2, X1 Jarm-3, X2	falling falling falling falling	nitor IP Filt	ter EtherNet/IP UserDefine Security ger ger	
- Mail Se	etup	_			
SMT	P Server	·	92 . 168 .	. 1 . 255	
Mail	From	М	essage@de	elta	
E-ma	ail Subject o	f Alarm			
			Su	ubject of Event	
1	MAIL AL	ARM1			
2	MAIL AL	ARM2			
3	MAIL AL	ARM3			
Rec	ipient E-mail Alarm-1	Address	Alarm-3	Mail Address	
1	X	D	D	Test1@Delta.com.tw	
2		X		Test2@Delta.com.tw	
3	D	D	D		
4	D	D	D	_	
E	5	D.	D.		
				OK Cancel Apply	

1. Mail alarm setup:

There are 3 mail alarms to be set up. Check the boxes to enable the alarms. The alarm can be triggered by "low" and "high".

2. SMTP server:

When alarm 1 is triggered, the E-Mail will first be sent to SMTP server, and the SMTP server will send it to the designated address. For example, assume there is an E-Mail to be sent to

<u>Test@delta.com.tw</u>, and the SMTP server is 192.168.0.1. The E-Mail will be sent to the SMTP server first, and the server will further send it to the recipient <u>Test@delta.com.tw</u>.

3. E-Mail of sender:

Maximum 63 Engligh characters are allowed.

4. Subject of E-Mail:

You can enter the text message in the column, and the message will be placed in the subject of the E-Mail and sent to the recipient. IFD9507 is able to contain 1 ~ 3 E-Mail subjects (max. 63 English characters are allowed).

5. E-Mail of recipient:

One mail can be sent to 10 addresses according to the alarm settings. Every address allows max.63 English characters. For example, (see the figure above) when Alarm 1 is triggered, the E-Mail will be sent to <u>Test1@delta.com.tw</u> and <u>Test2@delta.com.tw</u>. When Alarm 2 is triggered, the E-Mail will be sent to <u>Test2@delta.com.tw</u>

Note:

To correctly send out E-Mails, there has to be a SMTP server in the network. When we send out an E-Mail, the mail will be sent to SMTP server first, and the server will further send the mail to the designated address.

10.5 Monitoring Settings

You can read data in designated addresses in different equipment in the network by setting up IFD9507. The data can be temporarily stored in IFD9507 for fast storing and acquisition.

Setting up monitoring functions

	bil and	iter Dit	Manita	r Mord	5
	Mon Station Addres	NICOF BIC 	Monito Station Address	r wora Device Address	Ē
	Decimal	Hexadecimal	Decimal	Hexadecimal	
1					
2					
3					
4					
5					
6					
7	Nave Meda				
7 ial 9	Slave Mode	ss Relay IP Addr	ess 🔺		
7 ial 9	ilave Mode Station Addre	ss Relay IP Addr	ess		
7 ial 9 1 2	ilave Mode Station Addre	ss Relay IP Addr	ess		
7 ial 9 1 2 3	Slave Mode	ss Relay IP Addr	ess		
7 ial 9 1 2 3 4	Station Addre	ss Relay IP Addr	ess		
7 ial 9 1 2 3 4 5	Slave Mode	ss Relay IP Addr	ess		
7 ial 9 1 2 3 4 5 6	Slave Mode Station Addre	ss Relay IP Addr	ess		
7 ial 9 1 2 3 4 5 6 7	Slave Mode	ss Relay IP Addr	ess 🔺		

1. Monitor bit:

Device addresses for setting up the bit status of serial slave; able to read the content in the

corresponding address of the designated slave.

2. Monitor word:

Device addresses for setting up the word status of serial slave; able to read the content in the corresponding address of the designated slave.

Note:

Cache mode normally enabled, and Max. data in 16 slaves can be monitored. When the cache mode is enabled, the data you would like to read will be sent back directly from the register in IFD9507.

Read cache mode → Read non cache mode → →



3. Serial slave mode (used when in Modbus TCP protocol):

The instruction sent from the master is received and transferred to the network. Please designate the station address and relay IP address.

Station address: slave PLC address (Gateway and PLC address cannot be the same)

Relay IP address: serial master IP



10.6 IP Filter

The IP filter is used for restricting the connection of the network in case some uncertain IP will cause errors. Only the IP set within a certain range can establish a connection. Other IPs will be rejected.

Setting up IP filter

IFD 9	507	
Ove	erview Bas	B Mail Monitor IP Filter EtherNet/IP User Define Security
	🔽 Enable	IP Filter (Only the IP address listed below are allowed to access)
_ I	IP Filter Setu)
	No.	IP Address Netmask
	1.	0 . 0 . 0 . 0 255 . 255 . 255
	2.	0 . 0 . 0 . 0 255 . 255 . 255 . 255
	3.	0 . 0 . 0 . 0 255 . 255 . 255 . 255
	4.	0 . 0 . 0 . 0 255 . 255 . 255 . 255
	5.	0 . 0 . 0 . 0 255 . 255 . 255
	6.	0 . 0 . 0 . 0 . 255 . 255 . 255 . 255
	7.	0 . 0 . 0 . 0 . 255 . 255 . 255 . 255
	8.	0 . 0 . 0 . 0 . 255 . 255 . 255 . 255
		OK Canad Arabi

1. Enable IP filter function:

Check the box to enable IP filter.

2. IP address:

IP addresses that are allowed to establish connections. Maximum 8 IPs are allowed.

3. Netmask:

Subnet mask of the IP that is allowed to establish a connection. To see whether the subnet mask is allowed, conduct bitwise AND operation between the allowed IP and subnet mask and destination IP and subnet mask. If the two values obtained are the same, the subnet mask is allowed by the network. For example, assume the IP is 192.168.0.1 and subnet mask 255.255.255.255.255, the only IP allowed to establish a connection will be 192.168.0.1. If the subnet mask is 255.255.255.0, the IPs allowed to establish connections will become 192.168.0.0 ~ 192.168.0.255.

10.7 Ethernet/IP settings

Ethernet/IP parameters are used for a connection.

Setting Ethernet/IP parameters

Verview Basic Mail Monitor IP Filte EhenNet/IP User Define Security Type Communication Adaptor Connection Parameters	9507										
Type Communication Adaptor Connection Parameters 1	verview	Basic M	lail	Monitor	IP Filt	er Eth	erNet/IP	Use	Define 9	ecuriț	y
Dest IP Timetick Timeout Tick Timeout (ms) Trig 1 0.00.0 64 40 2560 Application 2 0.00.0 64 40 2560 Application 4 0.00.0 64 40 2560 Application 1 101 128 Dut Instance Dut Size Width Conig 2 101 128 100 128 2 Bytes - 3 101 128 100 128 2 Bytes - 1 101 128 100 128 2 Bytes - 1 101 128 100 128 2 Bytes - 1 128 Monitor IP Filte EthenNet/IP	Туре		Com	munication	n Adap	otor					
Dest IP Timetick Timeout Tick Timeout (ms) Trige 1 0.0.0 64 40 2560 Application 3 0.0.0 64 40 2560 Application 4 101 128 100 128 Bytes - 3 101 128 100 128 Bytes - 4 101 128 100 128 Bytes - 4 101 128 100 128 Bytes - 7 Communication Adaptor Communication Adaptor Communication Adaptor 100000 100000 3 2260 Application Object 300000 100000	Connec	ction Parame	eters								
Unexter Imedu (InS) Imedu (InS) Application 2 0.0.00 64 40 2560 Application 3 0.0.00 64 40 2560 Application 4 0.0.0.0 64 40 2560 Application 1 101 128 100 128 2.Bytes - 3 101 128 100 128 2.Bytes - 4 101 128 100 128 2.Bytes - 4 101 128 100 128 2.Bytes - verview Basic Mail Monitor IP Filter EthenNet/IP User Define Security Type Communication Adaptor Communication Object		Deet	IP	Timet	ick	Timeo	ut Tick	Tim	nout (me)		Tria
2 0.0.0 64 4 40 2560 Application 3 0.0.0 64 40 2560 Application 4 101 128 100 128 2 Bytes 1 3 101 128 100 128 2 Bytes 1 3 101 128 100 128 2 Bytes 1 4 101 128 100 128 2 Bytes 4 OK OK OK OK OK OK OK OK OK <td>1</td> <td>000</td> <td>0</td> <td>64</td> <td>ICK T</td> <td>1 meu</td> <td>40 40</td> <td></td> <td>2560</td> <td>Anr</td> <td>lication</td>	1	000	0	64	ICK T	1 meu	40 40		2560	Anr	lication
3 0.0.0 64 • 40 2560 Application 4 0.0.0 64 • 40 2560 Application • • • 40 2560 Application • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • •	2	0.0.0	0	64	-	2	10		2560	Apr	lication
4 0.0.0 64 40 2560 Application I In Instance In Size Dut Instance Out Size Width Config 1 101 128 100 128 2 Bytes - 2 101 128 100 128 2 Bytes - 3 101 128 100 128 2 Bytes - 4 101 128 100 128 2 Bytes - 9507 Communication Adaptor Define Security Trape Communication Adaptor Communication Adaptor Timeout (ms) Trigger O 30000 100000 2 2560 Application Object 300000 100000 3 2560 Application Object 300000 100000 <t< td=""><td>3</td><td>0.0.0</td><td>.0</td><td>64</td><td>-</td><td>2</td><td>40</td><td></td><td>2560</td><td>App</td><td>lication</td></t<>	3	0.0.0	.0	64	-	2	40		2560	App	lication
Image: Instance Instance Image:	4	0.0.0	.0	64	-	2	40		2560	App	lication
In Instance In Size Out Instance Out Size Width Config 2 101 128 100 128 2 Bytes - 3 101 128 100 128 2 Bytes - 4											
In Instance In Size Dut Instance Out Size Width Config 1 101 128 100 128 2 Bytes - 3 101 128 100 128 2 Bytes - 4											_
101 128 100 128 2 Bytes • 3 101 128 100 128 2 Bytes • 4 00 128 2 Bytes • • • 9507 0K Cancel Apply Apply • • 128 Mail Monitor IP Filter EtherNet/IP User Define Security Type Communication Adaptor Communication Adaptor • 300000 100000 2 2560 Application Object 300000 100000 • 1 2560 Application Object 300000 100000 • 2 <td>_</td> <td>In Instan</td> <td>ce</td> <td>In Size</td> <td>Out</td> <td>Instan</td> <td>ce Oul</td> <td>Size</td> <td>Widt</td> <td>h</td> <td>Config</td>	_	In Instan	ce	In Size	Out	Instan	ce Oul	Size	Widt	h	Config
2 101 128 100 128 2 Bytes • 3 101 128 100 128 2 Bytes • 4 4 9707 1/2 Communication Adaptor 1 1 1 <td>1</td> <td>101</td> <td></td> <td>128</td> <td></td> <td>100</td> <td>1</td> <td>28</td> <td>2 Bytes</td> <td>-</td> <td></td>	1	101		128		100	1	28	2 Bytes	-	
3 101 128 100 128 2 Bytes • 4 0 128 100 128 2 Bytes • 9507 Communication Adaptor Type Communication Adaptor Connection Parameters Timeout (ms) Trigger 0->T RPI T->0 RPI 1 2560 Application Object > 300000 100000 2 2560 Application Object > 300000 100000 3 2560 Application Object > 300000 100000 4 128 100 128 2 Bytes 6 3 128 100 128 2 Bytes 6 3 128 100 128 2 Bytes 6 3	2	101		128		100	1	28 20	2 Bytes	-	
• 101 125 100 125 2 Bytes • • • • • • • • • •	3	101		120		100	1	20 79	2 Bytes	-	
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1. Dest IP

This is Destination IP address.

2. Timeout (ms)

Timetick * Timeout tick = Timeout

%~ Available time tick: 20 ~ 215 $\,$

- ※ Max. Timeout tick: 255
- 3. Trigger

There are three trigger types. The cyclic used to describe event that repeat in regular. Production occurs when a change of state is detected by application object. The Application object used to provide the run time exchange of messages across network.

4. O→T RPI

Originator to target requested packet interval.

When the trigger occurs, the packet is sent to the target within the set interval time.

5. T→O RPI

Target to originator requested packet interval.

When the trigger occurs, the packet is sent to the source within the set interval time.

- In Instance
 Target input buffer Instance. Range: 1 ~ 65,535.
- In Size
 Target input buffer size. Range: 0 ~ 256.
- Out Instance Target output buffer instance. Range: 1 ~ 65,535.
- Out Size
 Target output buffer size. Range: 0 ~ 256.
- 10. Width Data width
- 11. Config Instance

Configuration instance. Range: 1 ~ 65,535.

10.8 User Defined Settings

When you set up user-defined communication protocol for IFD9507, please set up the following parameters.

Setting up communication parameter between RS-232/RS-485 serial master and serial slave

Overview Basic Mail Monitor IP Filter EtherNet/IP User Define Security Module Name IFD9507 Master Configuration Static • IP Configuration Static • IP Configuration Static • IP Address 192 168 1 9 Netmask 255 255 0 0 Gateway 192 168 1 1 Communication Parameter User Define COM2 (RS-485) 7 • Baudrate Modbuc COM1 (RS-323) 1 • Mode ASCI Station Address 3 ÷ Application Protocol EtherNet/IP • 1 • Timer Setting (see Alive Time (s) 30 (5 - 65535 s) 1 • Modbus Timeout (ms) 5000 (5 - 65535 s) 0 • • • EtherNet/IP User Define Cancel Apply • • • • • • • • • • •
Module Name IFD9507 Master Configuration Serial Slave IP Configuration Static IP Address 192, 168, 1, 9 Netmask 255, 255, 255, 0 Gateway 192, 168, 1, 1 Communication Parameter User Define COM2 (RS-485) COM Protocol Setup User Define COM2 (RS-485) Baudrate Modbus COM1 (RS-232) Mode ASCII Variation Station Address Application Protocol EtherNet/IP Timer Setting (5 - 65535 s) Modbus Timeout (ms) 5000 OK Cancel Apply Delay Time (ms) O (0 - 65535 ms) Delay Time (ms) 0 OK Cancel Apply Secial Moster Delay Time (ms) 0 OK Cancel Apply Secial Slave Destination IP 0 0 Fisclength 1 Bytes
Module Name µP0307 Master Configuration Serial Slave IP Configuration Static IP Address 192, 168, 1, 9 Netmask 255, 255, 255, 0 Gateway 192, 168, 1, 1 Communication Parameter User Define COM2 (RS-485) COM Protocol Setup User Define COM2 (RS-485) Baudrate Modue COM1 (RS-232) Mode ASE() Very Define COM2 (RS-485) 7 Very Define COM2 (RS-485) 7 Valuer Define COM2 (RS-485) 7 Mode ASE() Very Define COM2 (RS-485) 7 Timer Setting 7 Keep Alive Time (s) 30 (5 - 65535 s) 9 Modus Timeout (ms) 5000 Delay Time (ms) 0 0 (0 - 65535 ms) Delay Time (ms) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Notice Comparation joint and state IP Configuration Static IP Address 192.168.1.9 Netmask 255.255.255.0 Gateway 192.168.1.1 Communication Parameter User Define CDM2 (RS-485) Communication Parameter Modbus CDM1 (RS-232) Mode Association Address Parity User Define CDM1 (RS-248) Mode Association Address Application Protocol EtherNet/IP Timer Setting (5 - 65535 s) Modbus Timeout (ms) 5000 Delay Time (ms) 0 UK Cancel Apply Security FD9507 C
IP Configuration Static IP Address 192.168.1.9 Netmask 255.255.0 Gateway 192.168.1.1 Communication Parameter User Define COM2 (RS-485) COM Protocol Setup User Define COM2 (RS-485) Baudrate Modbus COM1 (RS-232) Parity User Define COM1 (RS-232) Mode Ascil Application Protocol EtherNet/IP Timer Setting (5 - 65535 s) Modbus Timeout (ms) 5000 (0 - 65535 ms) Delay Time (ms) Delay Time (ms) 0 OK Cancel Apply Serial Slave Destination IP 0.0.0.0 Destination Prot 20000 Serial Slave Destination Prot Destination IP 0.0.0.0 Destination Prot
IP Configuration Static IP Address 192.168.19 Netmask 255.255.255.0 Gateway 192.168.11 Communication Parameter User Define CDM2 (RS-485) Baudrate Modbus CDM2 (RS-485) Parity User Define CDM2 (RS-485) Year Define CDM2 (RS-485) 7 Parity User Define CDM2 (RS-485) Year Define CDM2 (RS-485) 7 Mode ASDIT Application Protocol EtherNet/IP Timer Setting Year Define CDM2 (RS-485) Keep Alive Time (s) 30 (S - 65535 s) 9 Modbus Timeout (ms) 5000 Delay Time (ms) 0 UK Cancel Apply FD9507 Everview Basic Mail Monitor Fis Length Bytes
If Address If Address Netmask 255 . 255 . 255 . 0 Gateway 192 . 168 . 1 . 1 Communication Parameter User Define CDM2 (RS-485) Baudrate Modbus CDM1 (RS-232) Mode ASCI Station Address Application Protocol EtherNet/IP Timer Setting Keep Alive Time (s) Keep Alive Time (s) 30 (5 - 65535 s) Modbus Timeout (ms) 5000 (5 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) COM1 (RS-232) Security FD9507 Security COM1 (RS-232) Security Secial Master Listen Port Listen Port 20000 Secial Slave Destination Port 20000 Secial Slave Destination Port 20000 Fis Length Bytes Security
Gateway 192 . 168 . 1 . 1 Communication Parameter User Define COM2 (RS-485) Baudrate Modbus COM2 (RS-485) Parity User Define COM2 (RS-485) User Define COM2 (RS-485) 7 Mode ASCI Station Address Application Protocol EtherNet/IP Timer Setting (S - 65535 s) Modeus Timeout (ms) 5000 Delay Time (ms) 0 OK Cancel Apply EtherNet/IP User Define Com2 (RS-485) Apply
Communication Parameter COM Protocol Setup Baudrate Parity Wode ASCI Station Address Application Protocol EtherNet/IP Timer Setting Keep Alive Time (s) 30 (5 - 65535 s) Modbus Timeout (ms) 5000 (5 - 65535 ms) Delay Time (ms) 0 (0 - 65
COM Protocol Setup User Define CDM2 (RS-485) Baudrate Modbus COM1 (RS-232) Parity User Define COM2 (RS-485) User Define COM2 (RS-485) 1 Mode ASCI Application Protocol EtherNet/IP Timer Setting Station Address Keep Alive Time (s) 30 (5 - 65535 s) Modbus Timeout (ms) 5000 (5 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) COM1 (RS-232) EtherNet/IP User Define Security OK Cancel Apply
Baudrate Modbus COM1 (RS-232) Parity User Define COM1 (RS-2485) Mode ASCI I Station Address Application Protocol EtherNet/IP Timer Setting Keep Alive Time (s) Keep Alive Time (s) 30 (5 - 65535 s) Modbus Timeout (ms) 5000 (6 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) Delay Time (ms) 0 0K Cancel Apply
Parity User Define COM1 (RS-232) 1 Mode ASCI Station Address Application Protocol EtherNet/IP 1 Timer Setting Image: Station Address 3 Keep Alive Time (s) 30 (5 - 65535 s) Modbus Timeout (ms) 5000 (5 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) OK Cancel Apply
Mode ASCI Station Address 3 Application Protocol EtherNet/IP Image: Constraint of the state of the st
Application Protocol EtherNet/IP Timer Setting Keep Alive Time (s) 30 (5 - 65535 s) Modbus Timeout (ms) 5000 (5 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) Ok Cancel Apply FD9507 COM1 (RS-232) Serial Master Listen Pott 20000 Serial Slave Destination IP 0.0.0 Destination Port 20000 FFix Length 1 Bytes
Timer Setting Keep Alive Time (s) 30 (5 - 65535 s) Modbus Timeout (ms) 5000 (5 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) IFD9507 Image: Concel Conce
Keep Alive Time (s) 30 (5 - 65535 s) Modbus Timeout (ms) 5000 (5 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) OK Cancel Apply IFD 9507 Overview Basic Mail Monitor IP Filter EtherNet/IP User Define Security COM1 (RS-232)
Modbus Timeout (ms) 5000 (5 - 65535 ms) Delay Time (ms) 0 (0 - 65535 ms) OK Cancel Apply
Delay Time (ms) 0 (0 - 65535 ms) UK Cancel Apply IFD9507 Image: Concel Co
OK Cancel Apply IFD9507 Dverview Basic Mail Monitor IP Filter EtherNet/IP User Define Security COM1 (RS-232) Serial Master Listen Port 20000 Serial Slave Destination IP 0.0.0 Destination Port 20000 Fix Length 1 Bytes
IFD9507 Overview Basic Mail Monitor IP Filter EtherNet/IP User Define Security COM1 (RS-232) Serial Master Listen Port 20000 Serial Slave Destination IP 0.0.0.0 Destination Port 20000 First Length 1 Bytes
IFD9507 Image: Constraint of the security Dverview Basic Mail Monitor IP Filter EtherNet/IP User Define Security COM1 (RS-232) Serial Master Listen Port 20000 Serial Slave Destination IP 0.0.0.0 Destination Port 20000 Image: Fix Length 1 Bytes Bytes Bytes
Overview Basic Mail Monitor IP Filter EtherNet/IP User Define Security COM1 (RS-232)
COM1 (RS-232) Serial Master Listen Port 20000 Serial Slave Destination IP 0.0.0.0 Destination Port 20000
Serial Master Listen Port 20000 Serial Slave Destination IP 0.0.0.0 Destination Port 20000
Serial Master Listen Port Serial Slave Destination IP 0.0.0.0 Destination Port 20000
Serial Slave Destination IP 0.0.0.0 Destination Port 20000
Destination IP 0.0.0.0 Destination Port 20000 Fix Length 1 Bytes
Fix Length 1 Bytes
Fix Length 1 Bytes
Start Item 1 🚽 Bytes, Start Char (Hex.) 3A 00 00
Stop Item 2 Bytes, Stop Char (Hex.) 00 0A 00
COM2 (RS-485)
Serial Master
Listen Port 20001
Serial Slave
Destination IP 0.0.0.0 Destination Port 20001
✓ Fix Length 1 Bytes 1 ~ 256
Start Item 1 - Bytes, Start Char (Hex.) 3A 00 00
Start Item 1 Bytes, Start Char (Hex.) 3A 00 00 Stop Item 2 Bytes, Stop Char (Hex.) 0D 0A 00
Image: Start Item 1 Image: Bytes, Start Char (Hex.) 3A 00 00 Image: Stop Item 2 Image: Bytes, Stop Char (Hex.) 0D 0A 00 1 2 Image: Bytes, Stop Char (Hex.) 0D 0A 00

1. Listen Port/Destination IP:

Range: 1,024 ~ 65,535

2. Fix Length:

Length of the packet to be transmitted. Unit: byte

3. Start Item:

- $1 \sim 3$ bytes of characters as the start of a packet.
- 4. Stop Item:
 - $1 \sim 3$ bytes of characters as the stop of a packet.

10.9 Virtual COM

Virtual COM converts the data transmitted to RS-232 to Ethernet.

■ Select "User Define COM".

	JIFD9507
Master Configuration	Serial Slave
Network Setup	
IP Configuration	Static
IP Address	192 . 168 . 1 . 9
Netmask	255 . 255 . 255 . 0
Gateway	192 . 168 . 1 . 1
Parity	User Define COM1 (RS-232) User Define COM2 (RS-485) ASCII Station Address 9
Mode Application Protocol	EtherNet/IP
Mode Application Protocol Timer Setting	EtherNet/IP
Mode Application Protocol Timer Setting Keep Alive Time (s)	EtherNet/IP
Mode Application Protocol Timer Setting Keep Alive Time (s) Modbus Timeout (ms)	EtherNet/IP 30 (5 - 65535 s) 5000 (5 - 65535 ms)

■ Switch to "User Define" page and select "Listen Port".

FD9507
Overview Basic Mail Monitor IP Filter EtherNet/IP User Define Security
- COM1 (RS-232)
Serial Master
Listen Port 20000
Serial Slave
Destination IP 0.0.0 Destination Port 20000
Fix Length 1 Bytes
☐ Start Item 1
Stop Item 2 Bytes, Stop Char (Hex.) 00 04 00
CDM2(BS-495)
Serial Master
Listen Port 20001 + 1024~65535
Serial Slave
Destination IP 0.0.0 Destination Port 20001
Fix Length 1 Bytes
Start Item 1 Bytes, Start Char (Hex.) 3A 00 00
Stop Item 2 - Bytes, Stop Char (Hex.) 00 0A 00
OK Cancel Apply

Open Virtual COM setup page.

🖳 Delta DCISoft				
檔案① 檢視① 工具① 説明 ○ ○ ○ ● ● ● ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ □ 和 ○ ② Bhenet	E) VitrolCOM			
メー時間	描述			
就緒 BROADCAST				
VirtualCOM - Co	afiguration			
-----------------	---	----------	---	--
COM Port I	Create Parameter COM Port COM2 IP Address Listen Port Module Name		Select CON – Search de network or address of	A port to become virtual vice on the enter the IP the device.
	0	K Cancel		

Press "OK", and you will see all the devices connected on the network.

Module	Module Name	IP Address	Port	M
IFD9507	IFD9507	192.168.1.5	20001	00

Select the module you need and press "OK". Relevant information of the device will be imported automatically. Press "OK" to complete the setup.

arameter				
COM Port	СОМЗ	•		VirtualCOM
IP Address	192.168.1.	5	-	Create succes
Listen Port	20001			<u>ОК</u>]
Module Name	IFD9507			

• Once the setup is successful, you can see the virtual COM you set in the Device Manager.

🖴 Device Manager	
File Action View Help	
🖃 🚇 WINXP-ENG	~
🕀 💘 Batteries	
E Gomputer	
🗄 🛬 Disk drives	
🛨 💆 Display adapters	
DVD/CD-ROM drives	
Hoppy disk controllers	
Hoppy also arives	
F- Ports (COM & LPT)	
Communications Port (COM1)	
- 🦅 Communications Port (COM2)	
ELTIMA Virtual Serial Port (COM3)	
Printer Port (LPT1)	
🗄 🐲 Processors	
🖅 🏀 SCSI and RAID controllers	2.0
🖅 🧐 Sound, video and game controllers	
🕀 🕎 System devices	~

10.10 Security Settings

To prevent the set values in IFD9507 from being modified, you can set up passwords to lock the settings in IFD9507.

Setting up password

IFD9507				×
Overview Basic Mail	Monitor IP Filter	EtherNet/IP Use	r Define Secu	rity
Login				
Password		Confirm		
Password Setup				
🔽 Modify				
Password				
Confirm Password		[
Load Factory Default				
Factory Setting				
		OK	Cancel	Apply

1. Password setup:

Check the "Modify" box to set up the password.

2. Confirm password:

Enter the new password again.

3. See "12.1 Application Examples" for more details.

Note:

Once the password is locked, all the pages cannot be set up unless you unlock the password. However, if you set up IFD9507 by RS-232, you can return the setting to default one whether the password is locked or not. For example, if you have locked IFD9507 but forget the password, you have to return IFD9507 to default setting by RS-232, and all the settings will return to default ones.

Login password

IFD9507		X
Overview Basic Mail M	Monitor IP Filter EtherNet/IP User Define Secu	uity
Login		
Password	Confirm	
Password Setup		
🗖 Modify		
Password		
Confirm Password		
Load Factory Default		
Factory Setting		
	OK Cancel	Apply

Password:

Enter the password to unlock the editing function for other pages.

10.11 Returning to Default Settings

If you need to clear all the settings after many modifications on the settings and return the settings to default ones, check the "Factory Setting" box.

Returning to default settings

IFD9507	Σ
Overview Basic Mail	Monitor IP Filter EtherNet/IP User Define Security
Login	
Password	Confirm
Password Setup	
Modify	
Password	
- Load Factory Default	
✓ Factory Setting	
4	
	OK Cancel Apply

Returning to default setting:

Check "Factory Setting" box and click on "Yes".

Note:

If you set up IFD9507 by RS-232, you can return to settings to default ones whether the password is locked or not. It will take approximately 10 seconds to return to default settings, so DO NOT switch off the power within the 10 seconds. Besides, you can also press "Reset" button for 2 seconds to return to default settings.

11 Setting up Configuration by Homepage

This section gives instructions on how to set up IFD9507 by homepage and explanations on each configuration page. IFD9507 is set up by UDP port 20006; therefore, you have to be aware of the relevant settings of the firewall. See the explanations below on the homepage.

11.1 Webpage connection

- Enabling webpage function
 - 1. Open IE, and enter the IP address of IFD9507 into the address column.
 - 2. See below for the setup page offered by the webpage. Preview all the information in the column on the left hand side.

Module	Module Nam	e	IFD9507				onliguration pa
IFD9507	Module Confi	guration	Sei	rial Master	-		
IP Address	Network Setup	1);					
192.168.1.9	IP Configurat	ion	Static 💌				
MAC Address	IP Address	1	192.1	68.1.9			
MAC Address	Netmask		255.2	55.255.0			
00:18:23:10:03:E9	Gateway	1	192.1	68.1.1			
Firmware Version	Communication	n Param	neter				
1.40	COM Protoco	l Setup		Modbus COM2 (RS-485)		-	
	Baudrate	9600	-	Data Length	7	-	
	Parity	E	-	Stop Bit	1	-	
	Mode	ASCII	-	Station Address	9		
	Application P	rotocol	[therNet/IP		-	
	Timer Setting						
	Keep Alive Ti	me(s)		30 (5~65535 s	;)		
	Modbus Time	eout (ms)	5000 (5~65535 m	ns)		
<u> </u>	Delay Time (n	ns)		0 (0~65535 m	ns)		

11.2 Basic settings

The basic settings include parameters as module name, network settings and series communication. Please consult your Internet service provider for relevant network settings. For other settings, please refer to BR4 \sim BR6 and BR11 \sim BR13.

The basics

Basic	Mail IP Filter	Slave Mode Setting	Master	Mode S	etting (Monitor)	Ethernet / IP	User Define	Security
Mod	lule	Module Nam	18	IFD950)7		_ ←	— BR4
IFC	09507	Module Con	figuration	Serial	Master	-		
IP A	ddress	Network Setu	p			18		
19	2.168.1.9	IP Configura	tion	Static		-		Network settings
10		IP Address	1	92.168.	1.9			
MAC	CAddress	Netmask	2	55.255.	255.0			
00	:18:23:10:03:E9	Gateway	1	92.168.	1.1			
Firm	ware Version		on Param	eter	dbue COM2 (PE	495)		
1.4	40	COMPIDIO	or Setup		unas comz (ns-	403)		BR4
		Baudrate	9600		Data Leng	th 7		BR5
		Parity	E	-	Stop Bit	1	-	BR6
		Mode	ASCII	-	Station Ad	dress 9		
		Application I	Protocol	Ethe	erNet/IP		-	
		Timer Setting Keep Alive T Modbus Tim Delay Time (ime(s) eout (ms) ms)	31 51 0) (5~)))) (5~) (0~	- 65535 s) - 65535 ms) - 65535 ms)		BR13 BR11 BR12
							Apply	

See 10.2 for how to set up.

11.3 Setting up E-Mails

Email is the abbreviation of electronic mail which transmits mails through the network. IFD9507 has E-Mail functions for the user to pre-save a segment of text messages, which can be a descriptive message or error message, into the subject of the E-Mail. When the E-Mail is triggered, IFD9507 will send the messages to the user by E-Mail.

Mail settings

Basic Mail IP Filter S	lave Mode Setting M	aster Mode Setting (Monitor)	Ethernet / IP User Define	Security		
Module IFD9507 IP Address 192.168.1.9	Mail Alarm Setup Alarm-1 * X0 Alarm-2 * X1 Alarm-3 * X2	Falling edgeTriggerFalling edgeTriggerFalling edgeTrigger	r r			
MAC Address	Mail Setup	192.168.1.255				
Firmware Version	Mail From E-mail Subject of	Message@delta Event Subject of Ala	rm			
1.40	1 MAIL ALARM1 2 MAIL ALARM2					
	3 MAIL ALA	RM3 Address				
	Alarm-1 A 1 2 2 3 4	larm-2 Alarm-3 E	-mail Address			
				Apple		

1. Mail alarm setup:

There are 3 mail alarms to be setup. Check the boxes to enable the alarms. The alarms can be triggered by "falling" or "rising".

2. See 10.4 for how to set up SMTP server/Mail From/E-mail Subject of Event/Recipient E-Mail Address columns.

11.4 IP filter

The IP filter is used for restricting the connection of the network in case some uncertain IP will cause errors. Only the IP set within a certain range can establish a connection. Other IPs will be rejected.

Setting up IP filter

Module IFD9507	₽	nable IP Filter Only the IP addres:	s listed below are allowed	to access)	
IP Address	No.	IP Address	Netmask		
192.168.1.9	1	0.0.0.0	255.255.255.255		
MAC Address	2	0.0.0.0	255.255.255.255		
	3	0.0.0.0	255.255.255.255		
00:18:23:10:03:E9	4	0.0.0.0	255.255.255.255		
Firmware Version	5	0.0.0.0	255.255.255.255		
1.40	6	0.0.0.0	255.255.255.255		
	7	0.0.0.0	255.255.255.255		
	8	0.0.0.0	255.255.255.255		

See 10.6 for how to set up.

11.5 Security Settings

To prevent the set values in IFD9507 being modified, you can set up passwords to lock the settings in IFD9507.

■ Setting up IFD9507 password

Basic	Mail	IP Filter	Slave Mode Setting	Master Mode Setting (Monitor)	Ethernet / IP	User Define	Security
Moc IFI IP A	lule D9507 ddress		Password Set Password Confirm Pas	tup]		
19 MAC 00	92.168.1 C Addre:):18:23:1	.9 ss 10:03:E9	Load Factory	Default Setting			
Firm 1.	nware V 40	ersion		Apply			

1. Password setup:

Maximum 4 characters are allowed. Leave the column "blank" to disable the password protection function.

2. Confirming password:

Enter the new password again.

Note:

Once the password is locked, all the pages cannot be set up unless you unlock the password. However, if you set up IFD9507 by RS-232, you can return the setting to default one whether the password is locked or not. For example, if you have locked IFD9507 but forget the password, you have to return IFD9507 to default setting by RS-232, and all the settings will return to default ones.

Login password

la dula	Password Setu	p		
lodule	Password			
^o Address	Confirm Pass	word		
MAC Address	Load Factory D	efault		
irmware Version	Rectory Se	1972		
		Apply		

1. Refresing webpage:

Once IFD9506 is locked by a password, please click on "Refresh" on the webpage toolbar to display the password login page.

Setting up password:
 Enter the password to enable the editing function on other pages.

11.6 Returning to default setting

If you need to clear all the settings after many modifications on the settings and return the settings to default ones, check the "Factory Setting" box.

Returning to default setting

Basic	Mail	IP Filter	Slave Mode Setting	Master Mode Setting (Monitor)	Ethernet / IP	User Define	Security	
Moo IF IP 4	dule <mark>D9507</mark> Address		Password Set Password Confirm Pas	up sword				
1! MA Di Firm 1.	92.168.1. C Addres 0:18:23:11 nware Ve .40	9 S D:03:E9 Prsion	Load Factory	Default ietting Apply				
Return	n to fac Doyc	tory sett ou want to Yes	ting o return to factory se	Kting ?				

Returning to default setting:

Check "Factory Setting" box and click on "Yes".

Note:

If you set up IFD9507 by RS-232, you can return to settings to default ones whether the password is locked or not. It will take approximately 10 seconds to return to default settings, so DO NOT switch off the power within the 10 seconds. Besides, you can also press "Reset" button for 2 seconds to return to default settings.

11.7 Monitoring settings

You can read data in designated addresses in different equipment in the network by setting up IFD9507. The data can be temporarily stored in IFD9507 for fast storing and acquisition.

Setting up Master Mode monitoring functions

SIC	Mail IP F	ilter Slave Mod	le Setting	Master Mode	Setting (Monitor)	Ethernet / IP	User Define	Security	
onit	or Bit				Monitor Word				
1	Station Addr. (Dec)	Device Addr. (Hex)	Bit Statu	IS	Station Addr. (Dec)	Device Addr. (Hex)	Content	Digit Selec	tion
2		0500	1		2	1064	0123	Hex	-
2		0501	1		2	1065	0b59	Hex	-
2		0502	0		2	1066	0123	Hex	-
2		0503	0		2	1000	0000	Hex	-
							/	-	-
						/			-
						/			-
<u> </u>		-				/			Ŧ
		-		`			-	-	-
-				Present	value of moni	tored devic	es		-
					a state of the state of the state				-
									-
									-
<u> </u>									-

1. Monitor bit:

Device addresses for setting up the bit status of serial slave; able to read the content in the corresponding address of the designated slave.

2. Content:

The corresponding monitored value of the device address.

3. Digit Selection:

The monitored value can be displayed in hex or decimal form.

4. Monitor word:

Device addresses for setting up the word status of serial slave; able to read the content in the corresponding address of the designated slave.

Note:

Cache mode normally enabled, and Max. data in 16 slaves can be monitored. When the cache mode is enabled, the data you would like to read will be sent back directly from the register in IFD9507.



Setting up Slave Mode monitoring functions

Basic	Mail	IP Filter	Slave M	lode	Setting	Maste	er Mode Setting (Monitor)	Eth	ernet / IP	User Define	Security	
			_	_								
			_		Station A	ddress	Relay IP Address					
Mod	ule		1					-				
IED	9507		2									
			3					_ =				
ID A	ddroee		4		-							
IF AU	uui 633		5									
40	2 460 4 0		6									
19	2.108.1.9		7	2								
			8		3							
MAC	Address	5	9									
			11	0	3							
00	:18:23:10	:03:E9	11	1								
			1	2	1							
Eirm	waro Vo	cion	13	3	3							
	Wale vei	31011	1.	4	3							
			1	5	3							
1.4	FU .		1	6	1							
			1	7	3							
			11	8	3							
			10	a	1			-				
			21	0	3			-				
			2	-				-				
							Ар	ply				

Serial slave mode: (used when in Modbus TCP protocol)
 The instruction sent from the master is received and transferred to the network. Please designate the station address and relay IP address.

Station address: slave PLC address (Gateway and PLC address cannot be the same) Relay IP address: serial master IP



11.8 Ethernet/IP

You can read data in designated addresses in different equipment in the network by setting up IFD9507. The data can be temporarily stored in IFD9507 for fast storing and acquisition.

■ Setting up Slave Mode connection parameters

:	Mail IP Filter	Slave	Mod	e Setting	Maste	er Mode Setti	ing (Monitor)	Ethe	rnet	/ IP User D	efine	Security
pe	Communicatio	n Adaptor										
		CI 3										
_	Dest IP	Timet	ick	Timeout	Fick T	"imeout (ms)	Trigge	er		0≻TRPI	⊤>(DRPI
1	192.168.1.72	64	•	40	2	560	Cyclic		-	300000	100000	
2	192.168.1.72	64	T	40	2	560	Application Ob	oject	-	300000	100000	
3	192.168.1.72	64	-	40	2	560	Application Ob	oject	-	300000	100000	
4	192.168.1.72	64	-	40	2	560	Application Ob	oject	-	300000	100000	
	In Instance	In S	ize	Out In:	stance	Output Si	ze Width	1	Cor	nfig Instance		
-	1	4		2		2	2 Bytes	-	0			
1.7	1	4		2		2	2 Bytes	-	0			
-				17		17	2 Bytes	•	6			
3	1	4		2		-		_				

1. Dest IP

This is Destination IP address.

2. Timeout (ms)

Timetick * Timeout tick = Timeout

- * Available time tick: $2^0 \sim 2^{15}$
- ※ Max. Timeout tick: 255.
- 3. Trigger

There are three trigger types. The cyclic used to describe event that repeat in regular. Production occurs when a change of state is detected by application object. The Application object used to provide the run time exchange of messages across network.

4. O→T RPI

Originator to target requested packet interval.

When the trigger occurs, the packet is sent to the target within the set interval time.

5. T→O RPI

Target to originator requested packet interval.

When the trigger occurs, the packet is sent to the originator within the set interval time.

6. In Instance

Target input buffer Instance. Range: 1 ~ 65,535.

7. In Size

Target input buffer size. Range: 0 ~ 256.

8. Out Instance

Target output buffer instance. Range: $1 \sim 65,535$.

9. Out Size

Target output buffer size. Range: 0 ~ 256.

10. Width

Data width

11. Config Instance

Configuration instance. Range: 1 ~ 65,535.

11.9 User Define

You can define your own format for data to be transmitted. The items to be defined include the fixed length, start item and stop item.

■ Select RS-232 or RS-485 to connect the device.

Basic	Mail	IP Filter	Slave	e Mode Setting	Master	Master Mode Setting (Monitor) Ethernet / IF			User Define	Security	
Mod	ulo			Module Nam	ie	IFD9507					
IFC)9507			Module Cont	iguration	Serial Slave)	-			
IP A	ddress			Network Setu	0						
19	2.168.1.	9		IP Configura	tion	Static		-			
MAC	. Addros			IP Address	1	92.168.1.9					
MAG	MAC Address			Netmask		255.255.255.0	1				
00	:18:23:1	0:03:E9		Gateway	1	92.168.1.1					
Firm	iware Ve	ersion		Communicatio	in Param	eter			_		
1.4	10			COM Protoc	ol Setup	Modbus	COM2 (RS-	485)	-		
				Baudrate	9600	Modbus	COM1 (RS- COM2 (RS-	232) 485)			
				Parity	E	User De	fine COM1 (RS-232)			
				Mode	ASCII	User De	Tine COM2 (Station Au	RS-485)			
				Application F	Protocol	Modbus/	тср		-		
				Timer Setting							
				Keep Alive T	ime(s)	30	(5)	- 65535 s)			
				Modbus Tim	eout (ms) 5000	(5-	- 65535 ms)			
				Delay Time (ms)	0	(0)	· 65535 ms)			
									Apply		

Switch to "User Define" page to set up the "Fix Length", "Start Item" and "Stop Item".

Basic	Mail	IP Filter	Slave Mode Setting	Master Mode Setting (Monitor)	Ethernet / IP	User Define	Security
CO	M1 (RS-23	2)					
L L	Serial Mas	ster		Serial Slave			
	Listen P	ort 200		Dest. IP 0.0.0.0	Dest. Port 2		
	Eiv Long	th 1	Putoe				
	J FIX Letig		Dytes				
	Start Ite	n 1	Bytes, Start C	har (Hex.) 3A 00 00			
] Stop Iter	n 2	▼ Bytes, Stop Cl	har (Hex.) OD OA OO			
-CO	M2 (RS-48	5)					
		,					
L L	Serial Mas	ster		Serial Slave			
	Listen P	ort 200	D1	Dest. IP 172.16.1.1	Dest. Port 200	001	
				4 050			
	Hix Leng	th 3	Bytes	↓ 1 ~ 250			
	Start Ite	n 1	👻 Bytes, Start	Char (Hex.) 3A 00 00			
	Stop Iter	n 3	Bytes, Stop	Char (Hex.) OD OA 00			
		1					
		2				Annly	
		3				Libbit	

1. Listen Port/Destination Port:

Range: 1024 ~ 65535.

1. Fix Length:

When this is sest, IFD9507 will transmit data following the fixed length.

2. Start Item:

The start item of data. Range: $1 \sim 3$

3. Stop Item:

The stop item of data. Range: $1 \sim 3$

When the start item and stop item are set, IFD9507 will transmit data following the start item and stop item. If the transmission time exceeds the Modbus time-out, IFD9507 will dispose of incomplete data.

Note:

When using two IFD9507 modules as Mater and Slave and its user define functions, the settings of the fixed length, start item and stop item have to be consistent. If not, the data will be filtered automatically.

12 Application Examples – DCISoft

12.1 Setting up & Unlocking Password

Application	Setting up password by IFD9507 configuration					
Steps	(1) Set up password in IFD9507.(2) Unlock IFD9507.					

- 1. See 10.1 for the connection and how to set up the communication.
- 2. Open the setup page and switch to "Security" page.

IFD9507				×
Overview Basic Mail	Monitor IP Filter	EtherNet/IP User	Define Secur	ity
Login				
Password		Confirm		
Password Setup				
Modify				
Password				
Confirm Password				
Load Factory Default				
Factory Setting				
		OK	Cancel	Apply

3. Check "Modify" and enter "aabb" in "Password" and "Confirm Password" columns. Click on "Apply" to save the password.

IFD9507				X
Overview Basic Mail	Monitor IP Filter	EtherNet/IP Use	er Define Secu	rity
_ Login				
Password		Confirm		
Password Setup				
Modify				
Password	****			
Confirm Password	××××			
Load Factory Default				
Factory Setting				
		OK	Cancel	Apply

4. Open the setup page again, and IFD9507 is now locked by the password. You cannot open any of the settings now. Enter the password and press "Confirm", and you will be able to unlock the editing function on other pages.

IFD9507				×
Overview Basic Mail	Monitor IP Filter	EtherNet/IP User De	fine Security	
_ Login				
Password	****	Confirm		
Password Setup				
🗖 Modify				
Password				
Confirm Password				
Load Factory Default-				
Factory Setting				
		OK	Cancel Apply	

12.2 Password Loss (Returning to Default Settings by RS-232)

Application	Returning to default settings by RS-232.					
Steps	(1) Set up password in IFD9507.(2) Supposed the password is forgotten, return to default settings through RS-232.					

- 1. Use DVPACAB2A30 cable to connect the PC and IFD9507. Open the setup page.
- 2. Check "Factory Setting" box and the warning dialog box will appear. Click on "Yes" to return to default settings (in approx. 5 ~ 10 seconds), and the password will be cleared as well.

12.3 IP Filter Protection

Application	Setting up IP filter protection. Only connections to 192.168.0.7 and 172.16.0.1 ~ 172.16.0.255 are allowed.
Steps	 (1) Check "Enable IP Filter" box. (2) Set up IP address to "192.168.0.7" and netmask to "255.255.255.255". (3) Set up the IP address to "172.16.0.1" and Netmask to "255.255.255.0".

- 1. See 10.1 for the connection and how to set up the communication.
- 2. Open the setup page and switch to "IP Filter" page.

IFD9507	
Overview Basi	c Mail Monitor IP Filter EtherNet/IP User Define Security
🔽 Enable	IP Filter (Only the IP address listed below are allowed to access)
□ IP Filter Setu	p
No.	IP Address Netmask
1.	0 . 0 . 0 . 0 255 . 255 . 255
2.	0 . 0 . 0 . 0 255 . 255 . 255
3.	0 . 0 . 0 . 0 255 . 255 . 255
4.	0 . 0 . 0 . 0 255 . 255 . 255
5.	0 . 0 . 0 . 0 255 . 255 . 255
6.	0 . 0 . 0 . 0 255 . 255 . 255
7.	0 . 0 . 0 . 0 255 . 255 . 255
8.	0 . 0 . 0 . 0 255 . 255 . 255
	OK Cancel Apply

3. Check "Enable IP Filter" box. Enter "192.168.0.7" into No. 1 IP and "255.255.255.255" in all "Netmask" columns.

IFD9507	×
Overview Basi	ic Mail Monitor IP Filter EtherNet/IP User Define Security
🔽 Enable	IP Filter (Only the IP address listed below are allowed to access)
⊢ IP Filter Setu	p
No.	IP Address Netmask
1.	192 . 168 . 0 . 7 255 . 255 . 255
2.	0 . 0 . 0 . 0 255 . 255 . 255
3.	0 . 0 . 0 . 0 255 . 255 . 255
4.	0 . 0 . 0 . 0 255 . 255 . 255
5.	0 . 0 . 0 . 0 255 . 255 . 255
6.	0 . 0 . 0 . 0 255 . 255 . 255
7.	0 . 0 . 0 . 0 255 . 255 . 255
8.	0 . 0 . 0 . 0 . 255 . 255 . 255
	OK Cancel Apply

4. Enter "172.16.0.1" in No. 2 IP and "255.255.255.0" in No. 2 Netmask column. Click on "OK" to complete the setting. Only the equipment within the UP range can be connected.

IFD9507	×
Overview Bas	c Mail Monitor IP Filter EtherNet/IP User Define Security
🔽 Enable	IP Filter (Only the IP address listed below are allowed to access)
	In Filler (Unity the in address listed below are allowed to access)
IP Filter Setu	P
No.	IP Address Netmask
1.	192.168.0.7 255.255.255.255
2.	172 16 0 . 1 255 . 255 . 0
3.	0 . 0 . 0 . 0 255 . 255 . 255
4.	0 . 0 . 0 . 0 . 255 . 255 . 255
5.	0 . 0 . 0 . 0 255 . 255 . 255
6.	0 . 0 . 0 . 0 . 255 . 255 . 255
7.	0 . 0 . 0 . 0 . 255 . 255 . 255
8.	0 . 0 . 0 . 0 . 255 . 255 . 255
	OK Cancel Apply

12.4 Application of E-Mail

Application	Sending E-Mail to notify the administrator when Alarm 1 is triggered.
	(1) Check "Alarm 1" to enable it.
Stone	(2) Set the IP of SMTP server to "192.168.1.99" and "Mail From" to "Message@Delta"
Steps	(3) Set the E-mail Subject of Event to "MAIL ALARM".
	(4) Set the E-mail address of administrator to test@Delta.com.tw

- 1. See 10.1 for the connection and how to set up the communication.
- 2. Open the setup page and switch to "Mail" page.

view	Basic	Mail Mo	nitor IP Filter El	herNet/IP User Define Secu	rity
lail Al	larm Setup	5			
Π,	Alarm-1, XO	falling	Trigger		
Γ.	Alarm-2, X1	falling	Trigger		
Π,	Alarm-3, X2	falling	- Trigger		
lail Sr	etun				
CMT	DConver	i.	102 100 1	00	
31911	- Selvel		132 . 160 . 1	. 33	
Mail	From	IM	essage@delta		
E-m	ail Subject o	of Alarm			
	Ť.		Subject	of Event	
1	MAIL AI	LARM1			
2	MAIL AI	LARM2			
3	MAIL AI	LARM3			
Rec	ripient E-ma	il Address —			
	Alarm-1	Alarm-2	Alarm-3	Mail Address	-
1	D	D	D		
2		D	D		
3	D	D	D		
4	D	D	D		
	D	D.	5		_

3. Setting up "Mail" page and check "Mail Alarm Setup".

Enter SMTP server address, "Mail From" column, "Subject of Event" and "Recipient E-mail Address". For example, when Alarm 1 is triggered, the mail will be sent to test@sample.com. Trigger Alarm 1 by "low". Enter 172.16.144.121 into "SMTP Server" column and Mail From Message@ENA01. Enter "MAIL EVENT" as the subject and recipient e-mail address as test@delta.com.tw. Check "Alarm 1" and press "OK" to complete the settings.

IFD9507				X
Overview	Basic N	1ail Mor	nitor IP Filt	er EtherNet/IP User Define Security
— Mail Al	arm Setun –			
	Narm-1, XU	falling	Trigg	jer
	Marm-2, X1	falling	Trigg	jer i l
	Marm-3, X2	falling	🚽 Trigg	jer
- Mail Se	etup			
SMT	P Server	L.	192.168.	. 1 . 99
Mail	From	М	essage@de	lta
⊢E-ma	ail Subject o	f Alarm		
			c.	thiset of Event
1	MAIL AL	ARM1	JU	
2	MAIL AL	ARM2		
3	MAIL AI	ARM3		
Rec	ipient E-mail	Address		
	Alarm-1	Alarm-2	Alarm-3	Mail Address 🔺
1	2			Test@Delta.com.tw
2				
3				
4 				
				OK Cancel Apply

12.5 Monitoring Mode

Application	Writing the address of the device to be monitored into the monitor table.
Steps	 Use monitor bit and monitor word functions. Monitor bit data in station address 1, H100 and H300, and word data in station address 1 H150. Monitor bit data in station address 2, H200. Monitor word data in station address 3, H200. Monitor word data in station address 4, H100. Monitor bit quantity: 3; monitor word quantity: 3

1. See 10.1 for how to set up communication.

2. Open IFD9507 Configuration page and switch to "Monitor" page.

	A CONTRACTOR OF A CONTRACTOR A	D.C.	Monitor Word		-
	Monil Station Address	tor Bit Device Address	Monito Station Address	r Word Device Address	
	Decimal	Hexadecimal	Decimal	Hexadecimal	
1					
2					
3					
4					
5					
6					
7					2
a no	Maxim Margaret				
ial 9	Slave Mode	s Relay IP Addr	ess 🔺		
ial 9 1	Slave Mode Station Addres	s Relay IP Addr	ess		
ial 9 1 2	Slave Mode Station Addres	s Relay IP Addr	ess		
ial 9 1 2 3	Slave Mode Station Addres	s Relay IP Addr	ess		
ial 9 1 2 3 4	Slave Mode Station Addres	s Relay IP Addr	ess		
ial 9 1 2 3 4 5	Slave Mode	s Relay IP Addr	ess		
ial 9 1 2 3 4 5 6	Slave Mode	s Relay IP Addr	ess		
ial 9 1 2 3 4 5 6 7	Slave Mode	s Relay IP Addr			

3. The settings:

	07					
Overv	view	Basic Mail M	1onitor IP Filter E	EtherNet/IP User [)efine Security	
C -						
- Se	erial M	aster Mode				
		Monit	or Bit	Monito	r Word	4
		Station Address	Device Address	Station Address	Device Address	
		Decimal	Hexadecimal	Decimal	Hexadecimal	
	1	1	100	1	100	
	2	1	300	3	200	
	3	2	200	4	100	
	4					
	5					
	6					_
	7					-
Se	erial SI	ave Mode				
		Station Address	s Relay IP Addr	ess 🔺		
	1	Station Address	s Relay IP Addr	ess 🔺		
	1 2	Station Address	s Relay IP Addr	ess		
	1 2 3	Station Address	s Relay IP Addr			
	1 2 3 4	Station Addres:	s Relay IP Addr			
	1 2 3 4 5	Station Addres:	s Relay IP Addr			
	1 2 3 4 5 6	Station Addres:	s Relay IP Addr			
	1 2 3 4 5 6 7	Station Addres:	s Relay IP Addr			
	1 2 3 4 5 6 7 8	Station Addres:	s Relay IP Addr			
	1 2 3 4 5 6 7 8	Station Addres:	s Relay IP Addr			

Note:

When the cache mode is enabled, you do not need to modify the station address and device address. You will read data from IFD9507, in which way you will be able to speed up the reading.

12.6 Application of Virtual COM Port

Application	Through the virtual COM port, IFD9507 is able to transmit the data sent to RS-232 to the Ethernet by connencting to the software supporing serial ports, e.g. Delta's WPLSoft, VFDSoft and ASDA-Soft. See the example below for how to connect IFD9507 to VFD-E AC motor drive through the virtual COM port by VFDSoft.
Steps	 Select "User Define" protocol and set the parameters in the serial master and serial slave to the ones consistent with those in VFD-E. Set up virtual COM port. Open Delta VFDSoft, set up the communication format (COM Setup) and establish the connection.

- 1. Setting up Virtual COM Port
 - For the COM setting, select "User Define" and set the communication parameters to the ones consistent with those in VFD-E.

Module Name	IFD 9507		_
Master Configuration	Serial Slave	•	
Network Setup	Teenarenare		
IP Configuration	Static	-	
IP Address	192 . 168 . 1	. 9	
Netmask	255 . 255 . 25	5.0	
Gateway	192,168 1	. 1	
Parity Mode Application Protocol	User Define COM1 User Define COM2 ASCII	(RS-232) (RS-485) Station Address	1 <u></u>
Timer Setting			
Timer bedding	30	(5 - 65535 s)	
Keep Alive Time (s)			
Keep Alive Time (s) Modbus Timeout (ms)	5000	5 - 65535 ms)	

Switch to "User Define" page and select "Listen Port".

COM1 (RS-232)					
Serial Master					
Listen Port	20000				
Serial Slave					
Destination IP	0.0.0.	0 Destina	tion Port 200	00	
Fix Length	1 B	,tes			
□ Start Item	1 👻 B	ytes, Start Char (I	Hex.) 3A	00 00	
☐ Stop Item	2 y B	ytes, Stop Char (I	Hex.) DD	04 00	
- Serial Master Listen Port	20001				
- Serial Slave					
Destination IP	0.0.0.	0 Destina	tion Port 200	01	
Fix Length	Л	ytes			
E contra	1 - B	ytes, Start Char (Hex.) 34	00 00	
1 Start Item					

• Open Virtual COM setup page.

🚇 Delta DCISoft		
Ele View Jools Help	Virtual COM	
Time	Description	
	Ethernet BROADCAST	- //

VirtualCOM - Configuration	
COM Port	
Parameter	
COM Port COM2	Select COM port to become virtual
IP Address	 Search device on the
Listen Port	address of the device.
Module Name	
OK Cancel	

Press "OK", and you will see all the devices connected on the network.

odule				
Node List				
Module	Module Name	IP Address	Port	M
IFD9507	IFD9507	192.168.1.5	20001	00:
]		
		OK	Car	ice1

Select the module you need and press "OK". Relevant information of the device will be imported automatically. Press "OK" to complete the setup.

COM P IP Add Listen I Module VirtualCOM & Edit Help COM Port <= DM2 <=	Port Idress I Port I Port I R M - 0	cOM3 s 192.1 t 20001 ame IFD950	168 . 1 7 OK	• . 5		VirtualCOM X Create succeed
Listen I Module VirtualCOM & Edit Help Mont <= DM Port <= DM2 <=	n Port ale Na DM - O elp	t 20001 ame IFD950 Configuration	7 OK] Cano	rel	
Module VirtualCOM le Edit Help Mont <= DM Port <= DM2 <=	ule Na DM - C elp	ame IFD950	7 OK] Cano	rel	
VirtualCOM le <u>E</u> dit <u>H</u> elp - X OM Port <= DM2 <=	<mark>DM - (</mark> elp	Configuration				
le <u>E</u> dit <u>H</u> elŋ DM Port <= DM2 <=	elp					
OM Port <= DM2 <=						
DM2 <=	<=>	IP Address	Port	Module	Module Name	
		132.100.1.5	20001	1123301	II DODOT	

• Once the setup is successful, you can see the virtual COM you set in the Device Manger.



- 2. Using Virtual COM in Delta VFDSoft
 - Open Delta VFDSoft.

Della VFDSoft	🗖 🗗 🗙
File Daive Degatotic Opticat Help	
Con Sele Open Sele Ext Quel Sette Patrieter Advance Keged Terre Monter	
0	
Off Line	
wit and	
Drive:	
Version:	
kW(Hp):	
Rated Voltage:	
Rated Current:	
History Meszage	
2008/12/10 字年 03:4514 > Setup the Com port and protocol	2
	Off - Lize Inter and and and and and and and and and

Setting up communication format (COM Setup)

Enter the virtual COM (COM2) set in the previous steps to "Com Port" column. Next, enter the communication format of VFD-E (38400, 7, E, 1) and press "Test" button. Once the "Success" light is ON, the communication test is regarded successful.

Communication Setup					
1 Please make sure the communication cable is already connected to PC.					
RJ11 or RJ45 JAC K RJ11 or RJ45 PLUG RS485 converter					
2. Please select the com port and Protocol.					
Com Port Baudrate and Protocol Com Manual Com Auto Detect					
2 • ASCII • 38400 • 7 • E • 1 •					
Basic Advance					
Success Fail Test					
3. Accept the setting and go on line. OK					

■ Press "OK", and IFD9507 will be able to communicate with VFD-E by VFDSoft.



13 Application Examples – AB Software (Revision:2.10.118.0)

13.1 Serial Slave

Using Delta PLC DVP28SV11T to control AB PowerFlex 40P via IFD9507.



- Configure 22-COMM-E IP
 Use AB software "Driver Explorer Application" to Set the PowerFlex40P+22CommE IP.
 - 1. Open Driver Explorer Application.
 - 2. Select "Configure Communication" in Explore.

📴 DriveExplorer			
<u>File Edit Explore Actions H</u> elp	_		
🗋 🚅 🛛 Configure Communication	10 早 早 亜 米 🤣		
Devices Connect	¥ Name	Value	Units
Custom Device Properties]		
Change settings for the serial port.			11.

3. Select "Serial"

Select your RS232 com port, Baud = "38400", Checksum Type="CRC-16" and click "OK"

Configure C	ommunicat	ion				
C Ethernet						
 Serial 	Port: Baud:	COM 7 38400	•	Checksum Type C BCC C CRC-16	Comm. Timeout	4 💌
Show Hid	lden Paramel	ers			Control Timeout	5 💌
Defaults						Cancel

4. Select "Connect Serial Point-to-Point" in Explore.

🔯 DriveE	xplorer		
<u>File E</u> dit	Explore <u>A</u> ctions <u>H</u> elp		
D 🚅 I	Configure Communication		
Devices	Connect •	Serial Point-to-Point Ctrl+L	/alue Units
Custom	Device Properties	Serial to <u>N</u> etwork	
Combar	e Results	<u>E</u> thernet Ctrl+E	
Connect to th	ne local node		

5. Select "Parameter List" in 22-COMM-E Ethernet/IP and enter "IP" in IP Addr Cfg1~Cfg4 and "Netmask" in Subnet Cfg1~Cfg4.

Fule Edit Explore Actions Help				IP
 Cattle Explore Actions Help Cattle Explore Actions Help Devices Node 11: - PowerFlex 40P 0 - PowerFlex 40P 32 20V 10HP Parameter List Parameter List 2 - 22-COMM-2 EtherNet/IP Parameter List Custom Views Compare Results 	S PP # 11:1.1 11:1.1 11:1.2 11:1.2 11:1.1 11:1.3 11:1.1 11:1.3 11:1.1 11:1.5 11:1.6 11:1.7 11:1.1 11:1.12 11:1.1.1 11:1.12 11:1.1.1 11:1.16 * 11:1.16 11:1.17 * 11:1.12 11:1.23 * 11:1.23 11:1.23 * 11:1.24 11:1.25 * 11:1.25 * 11:1.26	Mode BOOTP IP Addr Cfg 1 IP Addr Cfg 1 IP Addr Cfg 2 IP Addr Cfg 3 IP Addr Cfg 3 IP Addr Cfg 4 Subnet Cfg 3 Subnet Cfg 3 Subnet Cfg 3 Subnet Cfg 4 Gabeway Cfg 1 Gabeway Cfg 4 Gabeway Cfg 4 Gabeway Cfg 4 EN Rate Add Reset Module Comm Fil Action Hi Cfg Logie BN Rate Add Reset Module Comm Fil Action Hi Cfg Logie BN Cfg Ef DSI I/O Act Dry 0 Addr Dry 2 Addr	Value Single Drv Disabled 1 72 255 255 255 255 0 192 168 1 Autodefect 100Mpp Full Ready Fealt Pault 0000 0000 0000 0000 000 0 Drv 0 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	IP Units Netmas
	* 11:126 * 11:127 * 11:127 * 11:128 R 11:129 * 11:130	Drv 2 Addr Drv 3 Addr Drv 4 Addr Web Enable Web Features	102 103 104 Enabled	11

- DCISoft configuration
 - 1. Open DCISoft "Basic" configuration screen.
 - 2. Select "Serial Slave" in Master Configuration.

- 3. Select "Static" in IP Configuration.
- 4. Enter "192.168.1.99" in IP Address field.
- 5. Enter "255.255.255.0" in Netmask field.
- 6. Select "Ethernet/IP" in Application Protocol.
- 7. Enter "231" in Station Address.
- 8. Press "OK".

🗒 Delta DCISoft - [ENA01-EIP]		
📑 File <u>V</u> iew <u>I</u> ools <u>W</u> indow <u>H</u> elp		_ 8 ×
🖆 🗐 🖉		
Image: Constraint of the second se	Overview Basic Meail Monitor IP Filler Ethemet/IP Security Module Name DELTA ENA01-EIP Secrial Slave Master Configuration Static Image: Configuration IP Configuration Static Image: Configuration IP Address 192.168.1.99 Network Setup Image: Configuration IP Address 192.168.1.1 Gateway 192.168.1.1 Communication Parameter Communication Parameter COM Protocol Setup Modbus COM2 (R3-485) - Baudrate 9000 - Data Length 7 Parity Even Stop Bits Ether Fuller	
Redy	Mode ASCII I Station Adduse 231 Application Protocol EtherNeVIF Image: Constraint of the state of the	OADCAST

- 9. Open DCISoft "Ethernet/IP" configuration screen.
- 10. Enter AB PowerFlex 40P IP Address "192.168.1.72" in Dest IP Field.
- 11. Select "Cyclic" in Trigger.
- 12. Enter PowerFlex 40P parameter "1","4","2","2","2 byte","6" in In Instance, In Size, Out Instance, Out Size, Width, Config Instance in turn.
- 13. Press "OK".
- WPL program
 - 1. Write control data to DVP IFD9507 IN register (H0500)
 - 2. Use WPL MODWR instruction to write the control data to EIP (H0500).
 - 3. Ex. RUN : 111000000011010→H701A



STOP : 111000000011001→H7019

Reverse RUN : 111000000101010→H702A

- Select which communication index you want. Write 1~4 to DVPIFD9507 BR15 (H000F). Use WPL MODWR instruction to select the DVP IFD9507 BR (H0500) index.
- 5. Set the I/O Enable Flag (BR14).

MO 1 SET M1122 MO MODWR H710A K231 H500 +M1 2 SET M1122 M1 MODWR K231 HF K1 +M2 3 SET M1122 M2 MODWR K231 HE H101 +M1127 RST M1127 +MO RST MO +M1 RST M1 M2 RST M2 + + END

Use WPL MODWR instruction to write "0101" set I/O enable Flag.

13.2 Serial Master

Using AB PLC 1769-L32E to write Delta PLC DVP28SV11T bit and register via IFD9507.



- Configure RSLinx 1769-L32E
 - 1. Open RSLinx and configure drivers

🗞 RSLin:	x Lite		
<u>File V</u> iew	Communications Station DDE/OPC	Security <u>W</u> indow]	Help
옮 \$	RSWho		
	Configure Drivers Configure Shortwits Configure Client Applications Configure CIP Options Driver Diagnostics CIP Diagnostics		

2. Select RS232 device and click "Add New"

Configure Drivers		
Available Driver Types:	Add New	<u>C</u> loæ <u>H</u> elp
1784-KT/KTK(D)/PKTK(D) DFI Polling Master Driver 1784-PCC (PCMCIA for ControlNet) 1747-PIC / AIC+ Driver DFI Slave Driver S-S SD/SD2 Driver DeviceNet Drivers PLC-5 (DH+) Emulator SLC 500 (DH485) Emulator 1784-PCMK Devices SoftLogix5 Remote Devices via Linx or 1756-ENET Gateway	Status	Configure Startup Start Stop Delete

3. Select Com port and click "Auto-Configure". When it is successful, it will show successful messages.

Configure Allen-Bradley DF1 Communications Device								
Device Name: AB_DF1-1								
Comm COM1 Device: Logix 5550 - Serial Port								
Baud Rate: 19200 Station Number: 00 (Octal)								
Parity: None 💌 Error Checking: BCC 💌								
Stop Bits: 1 Protocol: Full Duplex								
Auto Configuration Successful								
Use Modem Dialer Configure Dialer								
Ok Cancel Delete Help								

- Configure IFD9507
 - 1. Open DCISoft "Basic" configuration screen.
 - 2. Select "Serial Master" in Master Configuration.
 - 3. Select "Static" in IP Configuration.
 - 4. Enter "192.168.1.99" in IP Address field.
 - 5. Enter "255.255.255.0" in Netmask field.
 - 6. Enter "231" in Station Address
 - 7. Press "OK".

IFD9507								
Overview Basic Mail Monitor IP Filter EtherNet/IP User Define Security								
Module Name IFD9507								
Master Configuration	Serial Slave							
Network Setup								
IP Configuration	Static							
IP Address	192 . 168 . 1 . 99							
Netmask	255 . 255 . 255 . 0							
Gateway	192.168.1.1							
Communication Parameter								
COM Protocol Setup	User Define COM2 (RS-485)							
Baudrate	9600 V Data Length 7 V							
Parity	Even 💌 Stop Bits							
Mode	ASCII 🗹 Station Address 9 🗧							
Application Protocol	Modbus/TCP							
Timer Setting								
Keep Alive Time (s)	30 (5 - 65535 s)							
Modbus Timeout (ms)	5000 (5 · 65535 ms)							
Delay Time (ms)	0 (0 - 65535 ms)							
OK Cancel Apply								

- Configure RSLogix 5000
 - 1. Select "New".
 - 2. Select controller type "1769-L32E" and type Name→click "OK".

New Controlle	r		
Vendor:	Allen-Bradley		
<u>T</u> ype:	1769-L32E CompactLogix5332E Controller	-	OK
Re <u>v</u> ision:	16 💌		Cancel
	🗖 Bedundancy Enabled		Help
Na <u>m</u> e:	Program		
Descri <u>p</u> tion:		^	
		~	
<u>C</u> hassis Type:	<none></none>	-	
Sl <u>o</u> t:	0 🚍 Safety Partner Slot:		
Cr <u>e</u> ate In:	C:\RSLogix 5000\Projects		Browse

3. Add new Ethernet module.



4. Select "communications" module.

Select Module	
Module	Description Vendor
By Category	<u>Find</u> <u>Add Favorite</u> By Vendor Favorites OK Cancel <u>H</u> elp

5. Select "ETHERNET-MODULE" and click "OK".

Select Module		×
Module 1769-L32E Ethemet Port 1769-L35E Ethemet Port 1788-EN2DN/A 1788-ENBT/A 1788-EWEB/A 1794-AENT/A 1794-AENT/B Drivelogix5730 Ethemet P ETHERNET-BRIDGE ETHERNET-BRIDGE ETHERNET-MODULE EtherNet/P PH-PSSCENA/A I Drives I HMI	Description 10/100 Mbps Ethernet Port on CompactLogix5332E 10/100 Mbps Ethernet Port on CompactLogix5335E 1788 Ethernet to DeviceNet Linking Device 1788 10/100 Mbps Ethernet Bridge, Twisted-Pair Media 1788 10/100 Mbps Ethernet Bridge w/Enhanced Web Serv 1794 10/100 Mbps Ethernet Adapter, Twisted-Pair Media 1794 10/100 Mbps Ethernet Adapter, Twisted-Pair Media 10/100 Mbps Ethernet Port on DriveLogix5730 Generic EtherNet/IP CIP Bridge Generic Ethernet Module SoftLogix5800 EtherNet/IP Ethernet Adapter, Twisted-Pair Media	Vendor Allen- Allen- Allen- Allen- Allen- Allen- Allen- Allen- Parkei
•		≥
By Category By Vendor		Favorite
	OK Cancel <u>H</u> e	alp

 Enter module name. Select Comm Format "Data-INT". Enter instance "101", Size "100", Out Instance "100", Output Size "100", Configuration Instance "6" and, Configuration Size "0" and IP: "192.168.1.99".

New Module					×
Type: Vendor: Parent: Na <u>m</u> e: Descri <u>p</u> tion: Comm <u>F</u> ormat	ETHERNET-MODULE Generic Etherne Allen-Bradley LocalENB ENA01EIP	t Module Connection Para Input: Output: Configuration:	meters Assembly Instance: Size: 101 100 100 (16-bi 100 (16-bi 6 0 (8-bit)		0
Address / F	lost Name ess: 192 . 168 . 1 . 99 ame:	<u>S</u> tatus Input: S <u>t</u> atus Output: OK		cel Help	

7. Enter Requested Packet Interval "500.0 ms" and click "OK"

Module Properties: LocalENB (ETHERNET-MODULE 1.1)	×
General Connection* Module Info	
<u>R</u> equested Packet Interval (RPI): 500,0 ÷ ms (1.0 - 3200.0 ms)	
🗖 Inhibit Module	
Major Fault On Controller If Connection Fails While in Run Mode	
- Module Fault	
Status: Offline OK Cancel Apply Help	

8. Open MainRoutine screen

		-
Controller Program	尚國國王	
Controller Tags		-
- Power-Up Handler		
Taska		
E 😪 MeinTesk		
😑 🕰 MainProgram	(Fod)	
Program Tags	(prod)	
1 MainRoutine		
- Unscheduled Programs		
Motion Groups		
Ungrouped Axes		
Add-On Instructions		
Data Types		
User-Defined		
Ca tild On Defined		
and Dendefined		
Modula Dational		
Trends		
I/O Configuration		
Backplane, CompactLogic System		
1769-L32E Program		
E 🏕 1769-L32E Ethemet Port LocalENB		
🖻 💑 Ethemet		
1769-L32E Ethemet Port LocalENB		
ETHERNET-MODULE ENAOIEIP		
CompactBus Local		
<		

9. Create New Tag "SW1" (Use SW1 to control instruction ON/OFF)

Controller Program		cope: 🕞 MainProgram 🕑 Show Show All					
Controller Tags		Name 🛆	Alias For	Base Tag	Data Type	Style	Description
Power-Up Handler		SW1			BOOL	Decimal	
Tasks	»						
Anin Task							
Program Tags							

10. Using Move instruction move data to "ENA01EIP: O.Data" register.

Ex : Set Delta PLC Y0 (H0500) ON

Send instruction MODBUS TCP: 06 01 05 05 00 FF 00

- (1) H0006: Mov "06" to ENA01EIP: O.Data[0]
- (2) H0105: Mov "261" to ENA01EIP: O.Data[1]
- (3) H0500: Mov "1280" to ENA01EIP: O.Data[2]
- (4) HFF00: Mov "65280" to ENA01EIP: O.Data[3]



- 11. Download this program and make the PLC 1769-L32E go online.
- 12. Toggle Bit "SW1".