

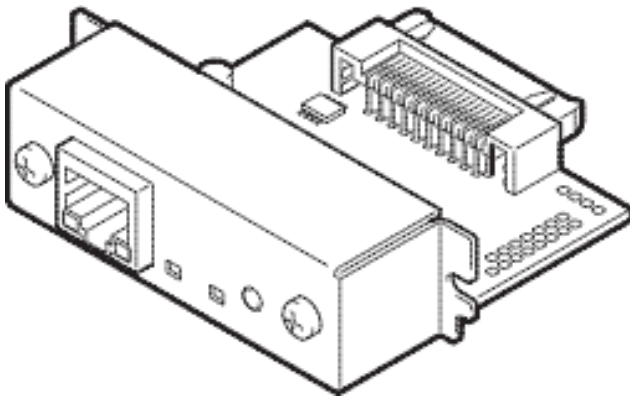
# CITIZEN

## **Ethernet Interface Board**

### **MODEL : IF1-ET01**

### **User's Manual**

Ver.2.12



**CITIZEN SYSTEMS JAPAN CO., LTD.**

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## Read before using

Be sure to read this manual carefully before using the product. After you read it, store it in a safe place so that you can reread it when necessary.

- Contents of this manual may be changed without notice.
- Reproducing and/or copying the contents of this manual by any means without permission are prohibited.
- We will not be responsible for any adverse occurrence that results from the use of this manual, regardless if it contains omissions, errors/misprints, etc.
- Note that we will not be responsible for (a) loss caused by improper operation or mishandling of the device by the user, or (b) loss due to operational environment.
- Data etc., are basically impermanent; long time or permanent storing/saving of data by the device is not possible.
- Note that we will not be responsible for any loss or loss of profits owing to loss of data due to breakdown, repairs, inspections, etc.
- Please contact us if there are omissions, errors, ambiguities, etc. in this manual.
- Refer to this document along with the user manual of the printer.
- This product operates by setting up a wireless connection between itself and other wireless LAN equipment for data transmission. Therefore, other wireless LAN equipment is required to use this product. While we have confirmed the operation of this product with certain wireless LAN equipment, operation with all types of wireless LAN equipment is not guaranteed. Carry out a sufficient evaluation before using this product.

### Trademarks

- Microsoft, Windows XP, Windows Vista, Windows 7 and Windows 8 are registered trademarks of Microsoft Corporation U.S.A.
- Other company names and product names mentioned here are trademarks or registered trademarks of those companies.

## Safety Instructions

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- Before handling the product (removing from packaging, etc.), discharge static electricity by touching metal, etc.
- Do not spill liquid onto the device.
- Do not place the device in a humid place.
- Do not step on, or subject the network cable connected to the device to rough treatment.
- Do not connect a telephone line to the RJ45 connector on the device. Be sure to connect STP cable (category 5 or higher).
- Connect the product only to devices that operate on SELV voltage (safety extra-low voltage).
- Be sure to use the device inserted in the interface board slot of the printer. Do not use the device when it is not inserted in the interface board slot.

**Important****FCC Radiation Exposure Statement**

The radiation exposure from this equipment is within the FCC RF radiation exposure limits for an uncontrolled environment. It is recommended that you install and operate this equipment with a minimum of 20 cm between the radiator and your body.

**CE Mark Warning**

This equipment is classified as a Class B product and may cause radio interference in a home environment. In such cases, the user is requested to take the necessary countermeasures to resolve the interference.

**Restrictions by Country**

Frequency range: 2400.0 to 2483.5 MHz



Country	Restrictions	Notes
Bulgaria	None	Outdoor use and public service require general authorization.
France	Outdoor use is limited to 10 mW e.i.r.p. within the band 2,454 to 2,483.5 MHz	Used for military radiolocation. The 2.4 GHz band is being reformed to relax the current regulations. Full implementation is planned by 2012.
Italy	None	Outdoor use requires general authorization.
Luxembourg	None	Network and service supply (not for spectrum) require general authorization.
Norway	Implemented	The geographical area within a radius of 20 km from the center of Ny-Ålesund is excluded from this subsection.
Russian Federation	None	For indoor use only.

Note: Do not use this equipment outdoors in France.

## 1. Introduction

---

Thank you for purchasing the Citizen IF1-ET01 Ethernet interface board.

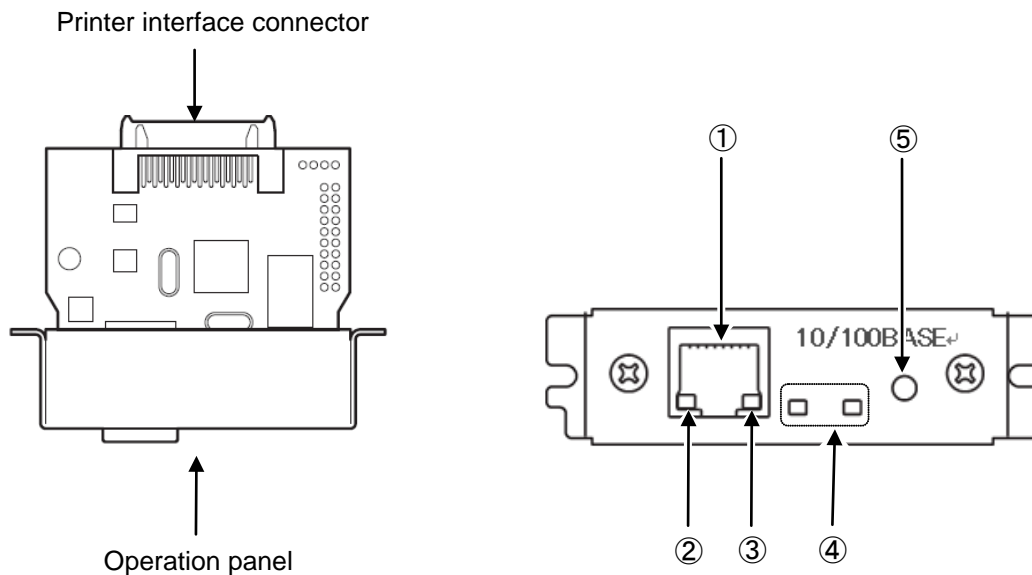
The IF1-ET01 Ethernet Interface Board is compatible with, for example, the Line Thermal Printer CT-S801 series and the CT-S601 series. Connecting the IF1-ET01 to a printer enables you to relay data between a network of multiple computers and the printer. In addition, the computers and printer are able to communicate with each other: the operational status, print settings, and other information about the printer can be checked from computers on the network.

## 1-1. Specifications

Compatible printers	CT-S801 Series, CT-S601 Series, CL-S400DT, CL-S6621, etc. (CT-S2000/310/300, etc. are not compatible)
Power supply	DC 5 V $\pm$ 5%
Power consumption	Approx. 1 W
Hardware	CPU: NXP LPC2458 ROM: 512 kb CPU internal flash RAM: 8Mbytes SDRAM
Operation panel	LED: 4 (2 on panel, 2 on RJ45 connector) Button: 1 (on panel)
Network I/F	Auto-Negotiation (100Base-TX/10-Base-T) Automatic distinguishing of straight/crossover cables (AUTO-MDIX)
Connection to the printer	Printer Class USB 2.0 FULL SPEED (however, CT-S801 side currently is USB 1.1)
IP Version	IPv4
Network protocols	TCP, UDP, HTTP, ICMP, DHCP
Port number for printing	TCP 9100 (initial value)
Configuration changes from the Ethernet interface board setting screen	Yes
Interactive communication	Yes (only when CITIZEN TCP/IP port driver is used)
Firmware upgrade	Yes (using the Ethernet interface board setting screen)
External dimensions	80 mm (W) x 70 mm (D) x 25 mm (H) (including connector protuberance)
Weight	Approx. 75 g
Operating temperature and humidity ranges	0 to 40°C, 10 to 90% RH (condensation free)
Storage temperature and humidity ranges	-20 to 90°C, 10 to 91% RH (condensation free)
Safety standards	VCCI Class A

## 1-2. Part Names and Functions

### Ethernet interface board unit



- ① RJ45 connector (compatible with 10Base-T/100Base-TX)  
Connection for LAN cable.
- ② Network transmission speed indicator<sup>\*1</sup>  
Shows network transmission speed with steady/blinking light. (Green)
- ③ Network status indicator<sup>\*1</sup>  
Shows network connection status (disconnected, receiving data, etc.). (Yellow)
- ④ Board status indicator<sup>\*1</sup>  
Shows operational status of the IF1-ET01 with combinations of steady and blinking lights. (Red/green)
- ⑤ Panel button<sup>\*2</sup>  
Used to operate the IF1-ET01.

<sup>\*1</sup> For indicator details, see “2-3. LED Functions” (page 10).

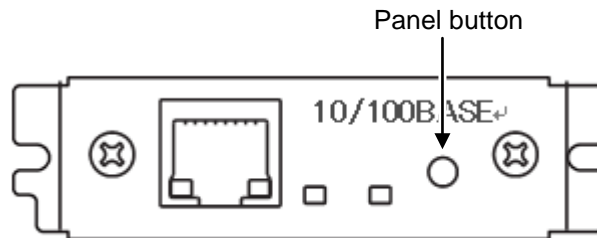
<sup>\*2</sup> For panel button operations, see “2-2. Using the Panel Button” (page 9).



## 2. Preparing the IF1-ET01

### 2-1. Using the Panel Button

The panel button on the operation panel is used to operate the IF1-ET01. You can use it to print settings information and restore factory default settings.



#### ■ Starting the Ethernet Interface Board

Switch on the printer. The IF1-ET01 starts along with the printer.

#### ■ Printing the Ethernet Interface Board Configuration

Press the panel button. For details, see “2-4. Printing the Ethernet Interface Board Configuration” (page 12).

#### ■ Switching to Setting Mode

Press and hold the panel button. The buzzer\* sounds once, signaling a switch to setting mode.

- Setting mode enables the reading of the factory default settings and printing of the firmware information.
- If there is no activity for 3 seconds in the setting mode, the buzzer\* sounds once, signaling a return to normal mode.

\* Note that the buzzer will not sound if the printer's buzzer is disabled.

#### ■ Restoring to the Factory Default Settings

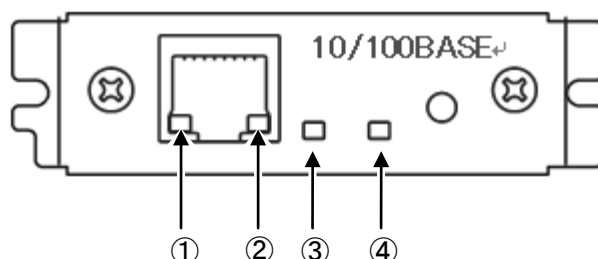
Switch to setting mode, then press and hold the panel button. The IF1-ET01 returns to the factory default settings.

#### Warning

When the operation is complete, the IF1-ET01 restarts automatically.  
When the IF1-ET01 is set to automatically obtain the IP address from the DHCP server, the IP address assigned may be different from the previous one.

## 2-2. LED Functions

The following charts show what each LED indicator indicates.



### ① Network transmission speed

Transmission speed	LED (green)
100 Mbps	On
10 Mbps / disconnected	Off

### ② Link status with network

Link status	LED (yellow)
Connected	On
Disconnected	Off
Transmitting data	Flashing

### ③ Status of connection with printer

Display content	LED (green)	Description
Printer: disconnected	Off	Not connected to printer
Printer: connected	On	Connected to printer

### ④ Status of connection with network

Display content	LED (red)	Description
Network: disconnected	Off	Not connected to network
Seeking IP address	Flashing (0.5 second cycle)	Seeking IP address from DHCP server
Network: connected	On	Network setting is complete

## ③&amp;④ Errors

Display content	LED (green)	LED (red)	Description
Resource error	Alternating blinking (0.5 second cycle)		The IF1-ET01 is malfunctioning
System error	Alternating blinking (0.1 second cycle)		The IF1-ET01 is malfunctioning

## 2-3. Printing the Ethernet Interface Board Configuration

Press the panel button to print out the IF1-ET01 configuration.

### ■ Configuration items that are printed

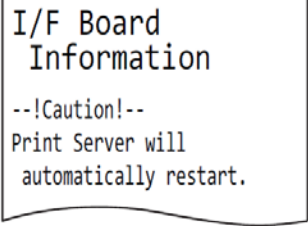
- ① Title of the printout.
- ② Firmware version of the IF1-ET01. Same as noted on the Ethernet interface board setting screen.
- ③ Configuration programmed in the IF1-ET01. Same as noted on the Ethernet interface board setting screen.
- ④ Network settings such as the IP address currently being used by the IF1-ET01. When the network is not connected, the IP address is "0.0.0.0".
- ⑤ Displayed only when "IP address from DHCP" is "Enable".

①	<h2>I/F Board Information</h2>																								
②	PrintServer: DQ00-05XX Mar 28 2014/11:56:22																								
③	<table><tr><td colspan="2">Configuration</td></tr><tr><td>MAC Address</td><td>:00:01:02:0a:0b:0c</td></tr><tr><td>Ethernet</td><td>:Auto-detect</td></tr><tr><td>DHCP</td><td>:Enable</td></tr><tr><td>IP Address(Fixed)</td><td>:192.168.10.101</td></tr><tr><td>Subnet Mask</td><td>:255.255.255.0</td></tr><tr><td>PrintPort</td><td>:9100</td></tr><tr><td>Receive Timeout</td><td>:180</td></tr><tr><td>Manufacturer</td><td>:CITIZEN SYSTEMS CO.,Ltd.</td></tr><tr><td>Model</td><td>:IF1-ET01</td></tr><tr><td>Serial Number</td><td>:10100016</td></tr><tr><td>Host Name</td><td>:no name</td></tr></table>	Configuration		MAC Address	:00:01:02:0a:0b:0c	Ethernet	:Auto-detect	DHCP	:Enable	IP Address(Fixed)	:192.168.10.101	Subnet Mask	:255.255.255.0	PrintPort	:9100	Receive Timeout	:180	Manufacturer	:CITIZEN SYSTEMS CO.,Ltd.	Model	:IF1-ET01	Serial Number	:10100016	Host Name	:no name
Configuration																									
MAC Address	:00:01:02:0a:0b:0c																								
Ethernet	:Auto-detect																								
DHCP	:Enable																								
IP Address(Fixed)	:192.168.10.101																								
Subnet Mask	:255.255.255.0																								
PrintPort	:9100																								
Receive Timeout	:180																								
Manufacturer	:CITIZEN SYSTEMS CO.,Ltd.																								
Model	:IF1-ET01																								
Serial Number	:10100016																								
Host Name	:no name																								
④	<table><tr><td colspan="2">Network</td></tr><tr><td>Ethernet</td><td>:Auto-detect 100BaseTx/Full</td></tr><tr><td>IP Address</td><td>:192.168.128.212</td></tr><tr><td>Subnet Mask</td><td>:255.255.254.0</td></tr><tr><td>Broadcast</td><td>:192.168.129.255</td></tr><tr><td>MTU</td><td>:1500</td></tr><tr><td>DHCP Server</td><td>:192.168.128.1</td></tr><tr><td>Gateway</td><td>:192.168.128.1</td></tr><tr><td>DNS1</td><td>:0.0.0.0</td></tr><tr><td>DNS2</td><td>:0.0.0.0</td></tr></table>	Network		Ethernet	:Auto-detect 100BaseTx/Full	IP Address	:192.168.128.212	Subnet Mask	:255.255.254.0	Broadcast	:192.168.129.255	MTU	:1500	DHCP Server	:192.168.128.1	Gateway	:192.168.128.1	DNS1	:0.0.0.0	DNS2	:0.0.0.0				
Network																									
Ethernet	:Auto-detect 100BaseTx/Full																								
IP Address	:192.168.128.212																								
Subnet Mask	:255.255.254.0																								
Broadcast	:192.168.129.255																								
MTU	:1500																								
DHCP Server	:192.168.128.1																								
Gateway	:192.168.128.1																								
DNS1	:0.0.0.0																								
DNS2	:0.0.0.0																								
⑤																									

#### 2-4. Returning the Ethernet Interface Board Configuration to Factory Default Settings

- 1) Press and hold the panel button to switch to setting mode.
- 2) After the IF1-ET01 has switched to setting mode, press and hold the panel button again within 3 seconds.

The following message is printed, and the IF1-ET01 returns to factory default settings.



```
I/F Board  
Information  
  
--!Caution!--  
Print Server will  
automatically restart.
```

#### Warning

When the operation is complete, the IF1-ET01 restarts automatically.

When the IF1-ET01 is set to automatically obtain the IP address from the DHCP server, the IP address assigned may be different from the previous one.

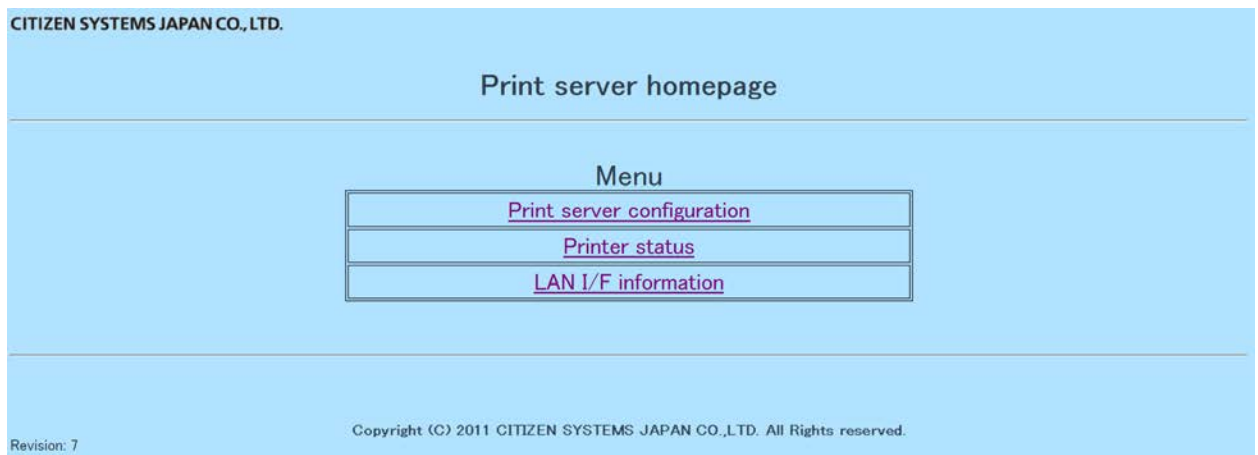
## 3. Using the Ethernet Interface Board Setting Screen

### 3-1. Connecting the Ethernet Interface Board

Using a Web browser, you can go to the Ethernet interface board setting screen to check or change the settings of the IF1-ET01 or to check the operational status of the printer.

#### ■ Accessing the Ethernet Interface Board Setting Screen

- 1) Launch your browser and go to the URL of the Ethernet interface board setting screen.  
For the URL, enter the IP address assigned to the printer. (For example, if the IP address is "169.254.1.10", enter "http://169.254.1.10".)
- 2) The Ethernet interface board setting screen appears.



### 3-2. Checking or Changing Ethernet Interface Board Configuration

You can check or change the settings of the IF1-ET01 from “Print server configuration” page of the Ethernet interface board setting screen.

#### ■ Checking the Ethernet Interface Board Configuration

On the menu page of the Ethernet interface board setting screen, click “Print server configuration”. The “Print server configuration” page appears.

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### Print server configuration

Printer information	
Manufacturer	CITIZEN
Model	CT-S801

Network settings	
Host name	PRN001
Line speed	Auto-detect

TCP/IP settings	
MAC address	00-0D-AC-10-00-16
IP address from DHCP	Enable
IP address	169.254. 1. 10
Subnet mask	255.255. 0. 0
Gateway IP address	0. 0. 0. 0
SNMP port number	161

Print settings	
Print port number	9100
Time-out duration for print data	180[Second]

[Edit](#)

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### ■ Ethernet interface board setting items

Classification	Item	Description	Changeable
Printer information	Manufacturer	Obtains information from the printer about the manufacturer of the printer to which the IF1-ET01 is connected	No
	Model	Obtains information from the printer about the model of the printer to which the IF1-ET01 is connected	No
Network setting	Host name	IF1-ET01 host name	Yes
	Line speed	Line speed Auto-detect (factory default) 10BaseT Half duplex 10BaseT Full duplex 100BaseTX Half duplex 100BaseTX Full duplex	Yes
TCP/IP settings	MAC address	MAC address	No
	IP address from DHCP	Setting to obtain IP address from DHCP server Enable: ON (factory default) Disable: OFF	Yes
	IP address	Static IP address 169.254.1.10 (factory default)	Yes
	Subnet mask	Subnet mask 255.255.255.0 (factory default)	Only when "IP address from DHCP" is "Disable"
	Gateway IP address	Gateway IP address 0.0.0.0 (factory default)	Only when "IP address from DHCP" is "Disable"
	SNMP port number	Port number used by SNMP agents	No
Print settings	Print port number	Print port number used for TCP 9100 (factory default)	Yes
	Time out duration for print data	Time-out duration of connection to host machines (0 to 65535 seconds). "0" means no time-out. 180 (factory default) • We recommend setting the time-out duration for at least 30 seconds.	Yes



### ■ Changing the Ethernet Interface Board Configuration

- 1) On the menu page of the Ethernet interface board setting screen, click “Print server configuration”. The “Print server configuration” page appears.
- 2) Click “Edit.”  
The editing page appears.

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## Print server configuration

Please edit parameters then click “Register”.

Printer information	
Manufacturer	CITIZEN
Model	CT-S801

Network settings	
Host name	PRN001
Line speed	<input checked="" type="radio"/> Auto-detect <input type="radio"/> 10BaseT Half duplex <input type="radio"/> 10BaseT Full duplex <input type="radio"/> 100BaseTX Half duplex <input type="radio"/> 100BaseTX Full duplex

TCP/IP settings	
MAC address	00-0D-AC-10-00-16
IP address from DHCP	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
IP address	169 254 1 10
Subnet mask	255 255 0 0
Gateway IP address	0 0 0 0
SNMP port number	161

Print settings	
Print port number	9100
Time-out duration for print data	180 0-65535[Second]

[Register](#)

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- 3) After changing the settings, click “Register.” The “Please wait” page appears, and the changes are saved.

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## Please wait

Print server will automatically restart.

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### Warning

When the operation is complete, the IF1-ET01 restarts automatically.  
 When the IF1-ET01 is set to automatically obtain the IP address from the DHCP server, the IP address assigned may be different from the previous one.

### 3-3. Checking the Operational Status of Printer

- 1) On the menu page of the Ethernet interface board setting screen, click “Printer status”.  
The “Printer status” page appears.
- 2) On the “Printer status” page beside “Printer status”, check the operational status of the printer. The information is updated every 5 seconds.

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### Printer status

Manufacturer	CITIZEN
Printer model	CT-S801
Printer status	Ready
Time-out duration for print data	180 [Second]

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#### ■ “Printer status” display items

Item	Description
Manufacturer	Information about the manufacturer of the printer to which the IF1-ET01 is connected.
Model	Information about the model of the printer to which the IF1-ET01 is connected.
Printer status	Operational status of the printer. Ready: Ready to print Offline: Not ready to print Paper Empty: Out of paper
Time-out duration for print data	Time-out duration of connection to host machines.

### 3-4. Checking the Ethernet Interface Board Version Information

The IF1-ET01 host name, serial number, and firmware version can be checked on the “LAN I/F information” page of the Ethernet interface board setting screen.

To view the “LAN I/F information” page, open the menu page of the Ethernet interface board setting screen, and then click “LAN I/F information”.

LAN I/F information	
Host name	PRN001
Serial number	10100022
Firmware version	PrintServer.DQ00-03XX Nov 18 2011/13:14:25

[Firmware update](#)

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Revision: 5

#### ■ “LAN I/F information” display items

Item	Description
Host name	IF1-ET01 host name
Serial number	IF1-ET01 serial number
Firmware version	IF1-ET01 firmware version

#### ■ Updating the firmware

- 1) Click “Firmware update”.
- 2) Click “Browse”, select the firmware file, and then click “Update”. The firmware is updated.

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### Firmware update

Please select a firmware file then click “Update”.

参照...

Update

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Revision: 3

## 4. Setting the IP Address

The IP address that is used to connect the printer to the network can be automatically obtained from the DHCP server or it can be manually set. When it leaves the factory, the IF1-ET01 is programmed to obtain the IP address from the DHCP server automatically. To change the IP address, enter it manually.

### ■ IP address when connecting to the network for the first time

After the printer is switched on, the IF1-ET01 automatically obtains the IP address from the DHCP server within 60 seconds. If an IP address cannot be obtained automatically, the static IP address (169.254.1.10) that had been set in the IF1-ET01 before it left the factory is applied.

### ■ Setting the IP address manually

- 1) Using your Web browser, access the Ethernet interface board setting screen. For the setting screen access method, see “3. Using the Ethernet Interface Board Setting Screen” (p.17).
- 2) Open the “Print server configuration” page and click “Edit.”
- 3) In “TCP/IP settings” group, set “IP address from DHCP” to “Disable”. The IP address will no longer be obtained from DHCP server automatically.
- 4) In “TCP/IP settings” group, set “IP address” to the IP address.
- 5) Click “Register” to save the changes.

### ■ Setting the IP address automatically

- 1) Using your Web browser, access the Ethernet interface board setting screen. For the setting screen access method, see “3. Using the Ethernet Interface Board Setting Screen” (p.17).
- 2) Open the “Print server configuration” page and click “Edit.”
- 3) In “TCP/IP settings” group, set “IP address from DHCP” to “Enable”. The IP address will be obtained from the DHCP server automatically.
- 4) Click “Register” to save the changes. The “Please wait” page appears, and the changes are saved.
- 5) Switch on the printer.

After the printer is switched on, the IF1-ET01 automatically obtains the IP address from the DHCP server within 60 seconds.

### ■ Checking the IP address

To check, print the settings information. For details, see “2-4. Printing the Ethernet Interface Board Configuration” (page 16).

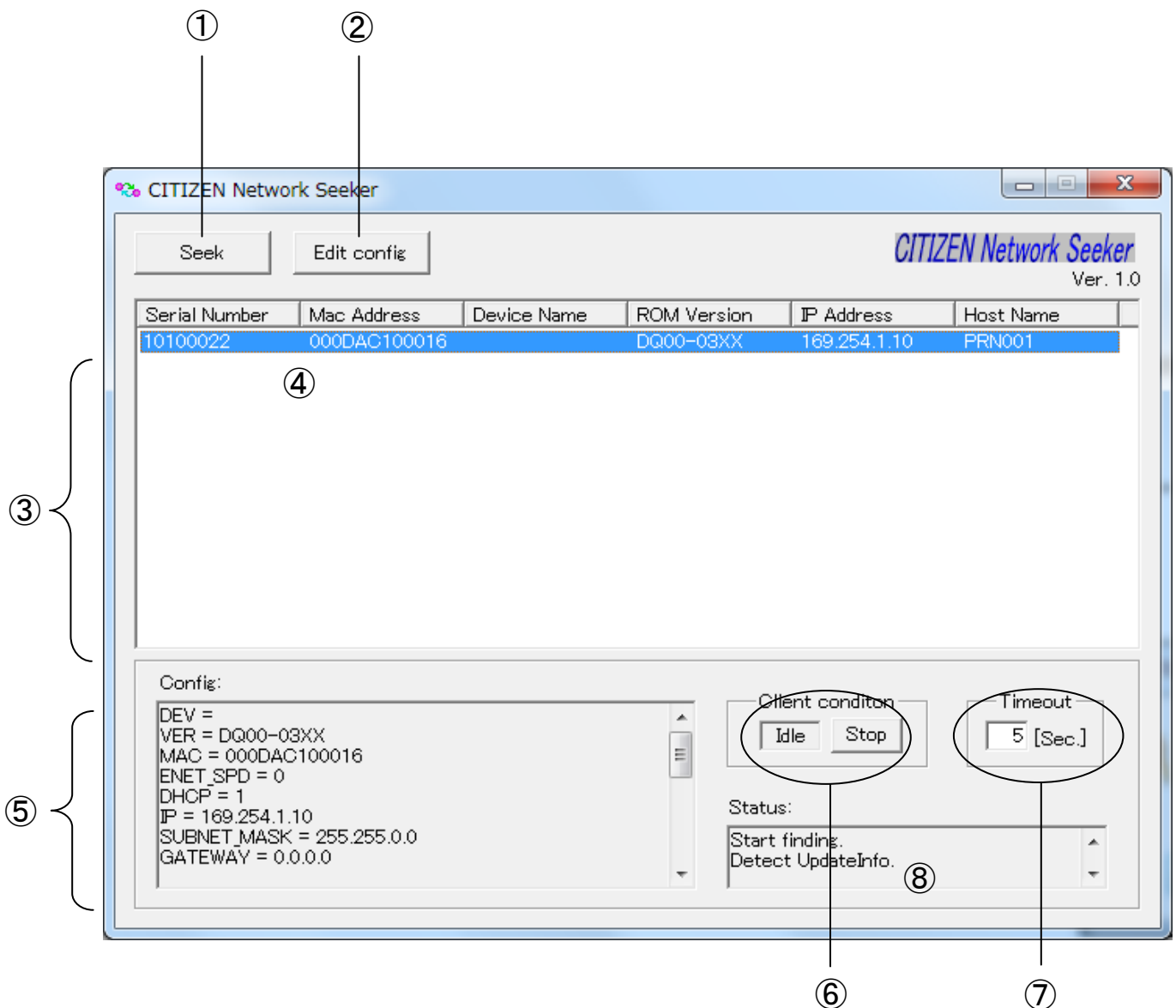
## 5. Network Seeker

By using “CITIZEN Network Seeker”, utility software that runs on Windows, you can check and change the Ethernet interface board settings.

### 5-1. Starting Network Seeker

After obtaining the program “NetSeeker.exe” from the CD-ROM or our website, double click the program. A dialog box appears.

Click “Seek” to start a LAN IF search.



- ① “Seek” button  
Start a search for Ethernet interface boards on the network.  
The search function waits for a response for the duration set for ⑦.
- ② “Edit config” button  
Change the settings of the selected board.
- ③ Board information list  
A list of discovered boards.
- ④ Board information  
Single click to select a board and double click to change settings.
- ⑤ Configuration display section  
View the settings of the selected board.
- ⑥ Client condition display  
When “Busy” is displayed, operations to search, change settings, and so on are prohibited.  
If you click “Stop”, the “Busy” status is cleared forcibly.
- ⑦ Communication timeout  
You can configure the time-out duration for searches and other operations.
- ⑧ Status log  
View the status of the utility.

## 5-2. Changing Settings

You can configure an Ethernet interface board by selecting it at the main dialog box, and then clicking “Edit config”.

**Edit Config**

\*Please edit parameters then click OK.

**Unalterable parameters**

Device name:  ROM version:

MAC address:  Serial number:

Manufacturer:

**Network parameters**

Host name:

Line speed:

IP address from DHCP:

IP address:  Subnet mask:

Gateway IP address:

**Print parameters**

PRNT\_PORT:  PRNT\_RCV\_TMO:

OK Cancel

① These are unalterable parameters. These parameters are for display purposes only.

② These are changeable parameters. Users can change these parameters.

## 6. Installing the Ethernet Interface Board Unit and Connecting to the Network

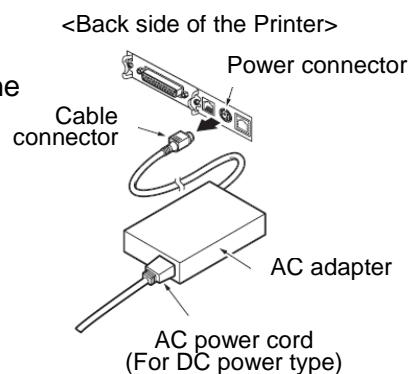
If the Ethernet interface board unit is already installed in the printer, proceed to “**■ Connecting to the Network**” (page 13).

### Warning

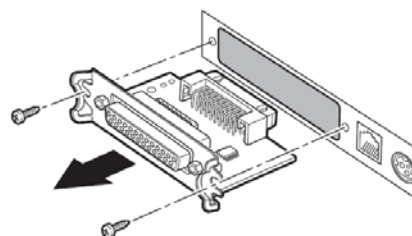
- Malfunctions may occur if the IF1-ET01 is removed or re-inserted.
- To install the IF1-ET01, please contact your dealer or service person.
- If you work on your own, consider static electricity and other factors carefully, and then install IF1-ET01 at your own responsibility.

### ■ Connecting to the Printer

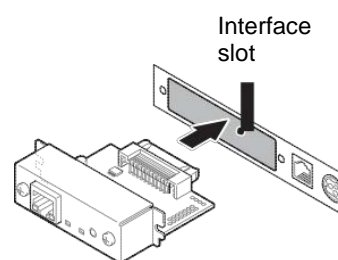
- 1) Switch off the power and remove the power cord from the printer.



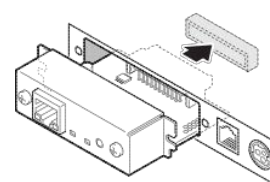
- 2) If another interface board is installed in the printer, remove it.



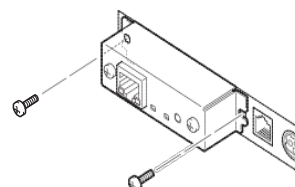
- 3) Insert the IF1-ET01 into the interface slot of the printer.



- 4) Connect the interface connector of the IF1-ET01 to the interface connector inside the printer.



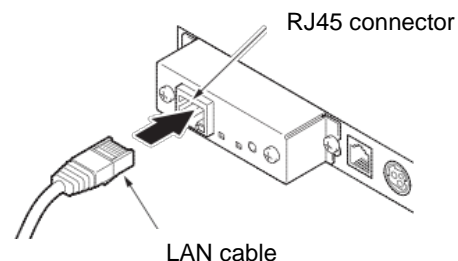
- 5) Fix the IF1-ET01 in place with screws.



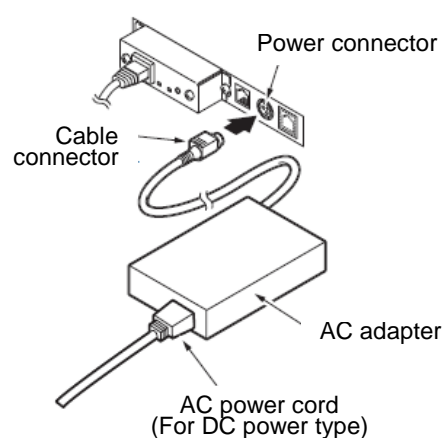


### ■ Connecting to the Network

- 1) Connect the LAN cable to the RJ45 connector of the IF1-ET01.



- 2) Connect the power cord to the printer.



### ■ Setting the IP address

Set the IP address for the printer in order to connect it to the network.

- 3) Switch on the printer.

After the printer is switched on, the IF1-ET01 automatically obtains an IP address from the DHCP server within 60 seconds. If an IP address cannot be obtained automatically, the static IP address (169.254.1.10) that had been set in the IF1-ET01 before it left the factory is applied.

- 4) Press the panel button.

The IP address and other settings are printed.

I/F Board Information	
Print Server:DQ00-01XX	
Jan 20 2010/14:30:51	
Configuration	
MAC Address	: 00 : 01 : 02 : 03 : 04 : 05
Ethernet	: Auto
	:
Network	
Ethernet	: Auto Negotiation
	100BaseTX/Full
IP Address	: 169.254.1.10
	:
DHCP Server	:192.168.1.10
Gateway	:192.168.1.10
DNS1	:0.0.0.0
DNS2	:0.0.0.0