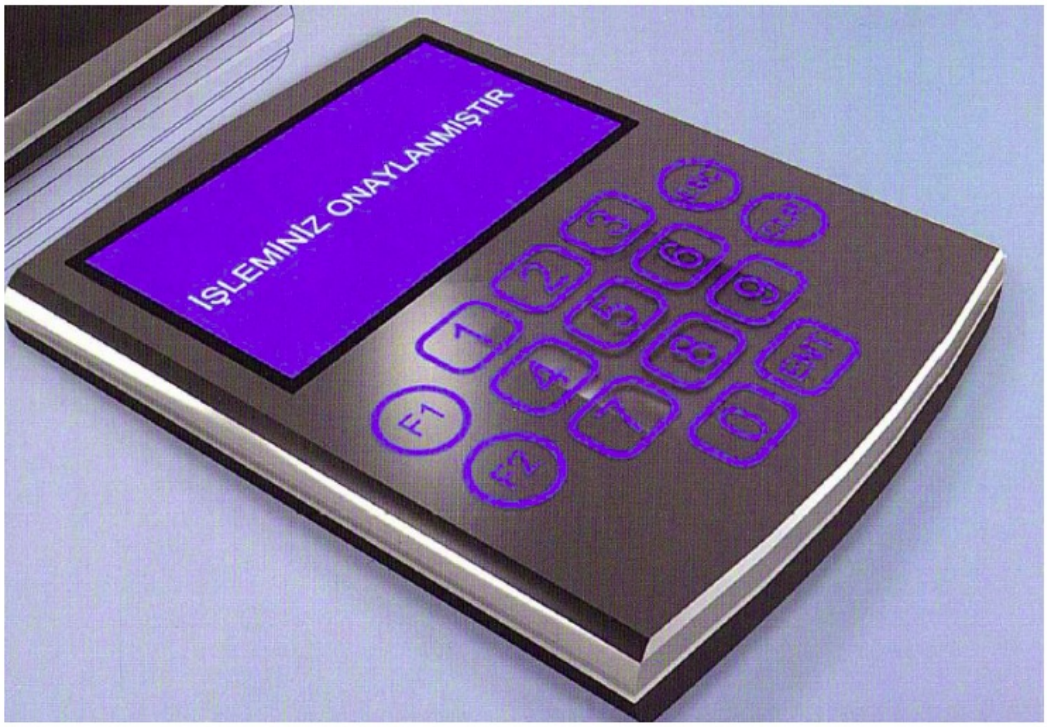
TSH Ethernet Mifare Card Reader User Manual

CTSH Ethernet Mifare Card Reader User Manual



WARNINGS

ATTENTION PLEASE!..

- Please be sure to read all the information provided in the manual before using your device.
- Please read all the instructions.
- Please keep the instruction for future use.
- Do not place the device on moving surfaces.
- Do not let any object lean on the power cord of the device.
- Do not lay the power cord in a way that others may step on it.
- Do not perform maintenance by yourself. Call the authorized service when you need servicing

Contents

1 TECHNICAL CHARACTERISTICS
2 PHYSICAL CHARACTERISTICS
3 ELECTRONIC CONTROL
4 OPERATING PRINCIPLES
5 COMMUNICATION
6 INSTALLATION
7 WIRING
8 MAINTENANCE-REPAIR
9 HANDLING & STORAGE
10 Documents / Resources
11 Related Posts

TECHNICAL CHARACTERISTICS

- **POWER:** 9 V DC
- **POWER CONSUMPTION:** 4 W
- **BODY ABS,:** coated or dyed
- **OPERATING TEMPERATURE:** (-20), (+50) C
- **DIMENSIONS:** 110 mm x 80 mm x 22 mm
- **COMMUNICATION:** TCP/IP
- **DATA SPEED:** 10Mbps
- **OPERATING FREQUENCY:** Main processor frequency: 25 MHz Mifare processor frequency: 13.56 MHz
- **RESPONSE RATE (ONLINE):** <150 ms (Based on network traffic)
- **RESPONSE RATE (OFFLINE)** :<50 ms
- **CARD READING DISTANCE:** 8 cm (max)
- **RELAY OUTPUT:** Uses single contact relay output. May be connected to inter-contact max 1A load.

DESCRIPTION

Ethernet – Card readers/writers are used with contactless chip card advantages in locations requiring secure access such as buildings, offices, dining halls, public transportation vehicles, vehicle platforms, entertainment and show center entrances, warehouses, private areas and other locations, personnel monitoring, pricing in automats and automat control, payment and loading points, pricing via reader control such as washing machines and printers, as a payment tool at canteens, cafes, stores, etc. as well as in all the other access applications.

PHYSICAL CHARACTERISTICS

Electrical Characteristics

Ethernet – Card reader/writer voltage is 9 VDC as standard. Instantaneous power consumed by the reader is approximately 4W. Standard dry contact output is available for pass access. Card reader/writer communicates via TCP/IP protocol. Features 128×64 graphical screen for visual displays, and 5VDC buzzer for audible warning.

Dimensions

Ethernet – Card reader/writer housing height is 110 mm, width is 80 mm, and depth is 22 mm. For more information on Ethernet – Card reader/writer outer dimensions please refer to the technical drawing and diagram

files.

ELECTRONIC CONTROL

Main Control Card

Ethernet – Card reader/writer is designed as microprocessor controlled. PIC18F67J60 main processor is used for processes such as PC communication and onscreen info display, and PIC18F2420 processor is used for mifare card processes. The operating frequency of PIC18F67J60 is 25MHz, and the operating frequency of PIC18F2420 is 13.56Mhz.

Graphical Display

128×64 Blue Graphical screen lighting used in Ethernet – Card reader/writer enables maximum visibility in no-light or dim environments. Visual aids in messages and logo usage is also possible with graphical display. All ASCII characters defined on the PC can be displayed on the LCD screen. It is possible to adjust the device as input – output or bidirectional, and such setting is displayed as a screen message.

LED Indicators

There are LED indicators on the device to show current status of the system. System status and reletad LED colors are listed below:

- **System Online** / **Connected to PC :** Blue (Constant)
- **System Offline** / **Not connected to PC :** Blue (Flashing)
- **Access Granted :** Green
- **Access Denied :** Red
- **Device doesn’t have a serial number :** Green and Blue
- **Date and Time failure :** Green and Red
- **Log Memory Full :** Blue and Red
- **Log Error :** Blue, Red and Green

Buzzer

There is a buzzer on the Ethernet – Card reader/writer indicating the action outcome as an audible signal in addition to the graphical display and LED indicators. A short beep sound is signaled if the action outcome is positive, and a long beep sound is signaled if the action outcome is negative.

OPERATING PRINCIPLES

Operation Method

If the device is connected to the PC, the card data is sent to the PC once the card is swiped and operates in ONLINE mode based on the commands received from the PC. The device will continue to operate in OFFLINE mode based on its own parameters in the event that PC connection is lost for any reason. The device resumes operating in online mode when the PC connection is reestablished. The access records stored on the device in the meantime are transferred to the PC. It is possible to set the device to operate in whether in ONLINE or only in OFFLINE mode.

Door Open and Personnel Passed Information:

Door PERSONNEL PASSED INFORMATION status data and entry/exit data of the user are transmitted to the control software via the two independent input ports of the device.

Language Support:

The device supports user-selectable two languages that can be set via PC. The action outcome is displayed in the preferred language once the card or finger is swiped. Moreover, it is possible to record personal message per user. An urgent message that needs to be delivered to the user is displayed in the first card reader point that the user accesses.

Logo Support:

TSH Teknik Servis Hizmetleri A.Ş.

All reader messages are graphically supported. Therefore, acknowledgment and response times of the message are considerably reduced. Moreover, it is possible for the user to upload 128×64 black/white BMP file to the device. Thus, it is possible to customize the device per user.

Personnel Identification:

It is possible to identify 16,896 personnel card data in the device, and the device can store 236544 access data in its memory when operating in OFFLINE mode.

Keypad Support:

There are 11 capacitive keys on the device and the functions are given below:

- **0…9 numerical:** Entering password is initiated by pressing any of these keys.
- **ENT :** Initiates the entered 6-digit password verification process.
- **ESC :** Cancels password process.
- **CLR :** Deletes last pressed key.
- **F1 :** Initiates the entered 6-digit password verification process. If access granted then reader switches to the FREE PASS ACTIVE state.
- **F2 :** Initiates the entered 6-digit password verification process. If access granted then reader switches to the FREE PASS PASSIVE state.

If no key is pressed within 10 seconds once password entering process is initiated, then the process is automatically ended.In FREE PASS ACTIVE state door always open.

COMMUNICATION

Reader Ethernet Settings

Reader reads the required parameters from its own memory and attempts to communicate with the PC when powered on for the first time. Device MAC Address will be displayed on the screen while Ethernet connection is attempted. Device factory settings are given below:

- **IP_ADDRESS:** 125:0:3:5
- **GATEWAY:** 125:0:0:10

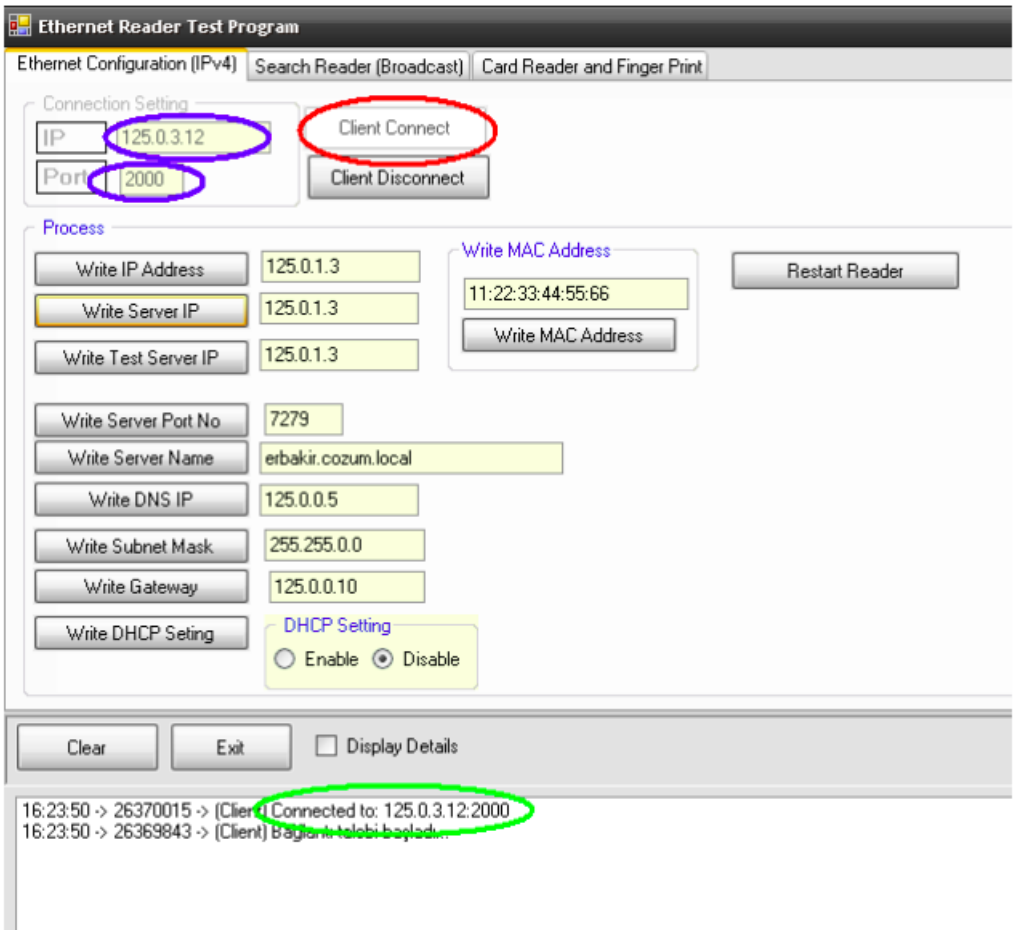
- **SUBNET_MASK;** 255:255:0:0
- **DNS_ADDRESS:** 125:0:0:5
- **SERVER_ADDRESS:** 125:0:3:1
- **SERVER_NAME:** empty
- **DHCP DISABLED:**
- **TCP_PORT_SERVER:** 2000
- **TCP_PORT_CLIENT:** 7279
  BROADCAST PORT: 6123

User must configure the reader conforming to the network settings via the test program

Communicating with the Test Program

The device announces its IP address 3 times with 5 second intervals as “TSH_TCP_IP_READER” once the reader is powered and device ethernet connection is established. Reader IP address is also displayed in the bottom line of the reader screen. “NO ETHERNET LINK” message is displayed instead of IP address if ethernet connection is not established. After learning reader’s IP address, required parameters are written in the reader by connecting reader port 2000 in CLIENT mode using the TESTING Application. “RESTART READER” command is sent via the TEST Program, and the parameters written in the reader are activated.

Write the IP address of the reader to be connected and connect to the reader by clicking “Client Connect” button. “Connected to” message is displayed with reader’s IP address if the action is successful. Then the settings required to be adjusted before connecting the reader to the network line are adjusted. “READER UPDATING PLEASE WAIT” logo is displayed on the reader screen once connected, and card reading operations are stopped until disconnected by clicking “Client Disconnect” button.

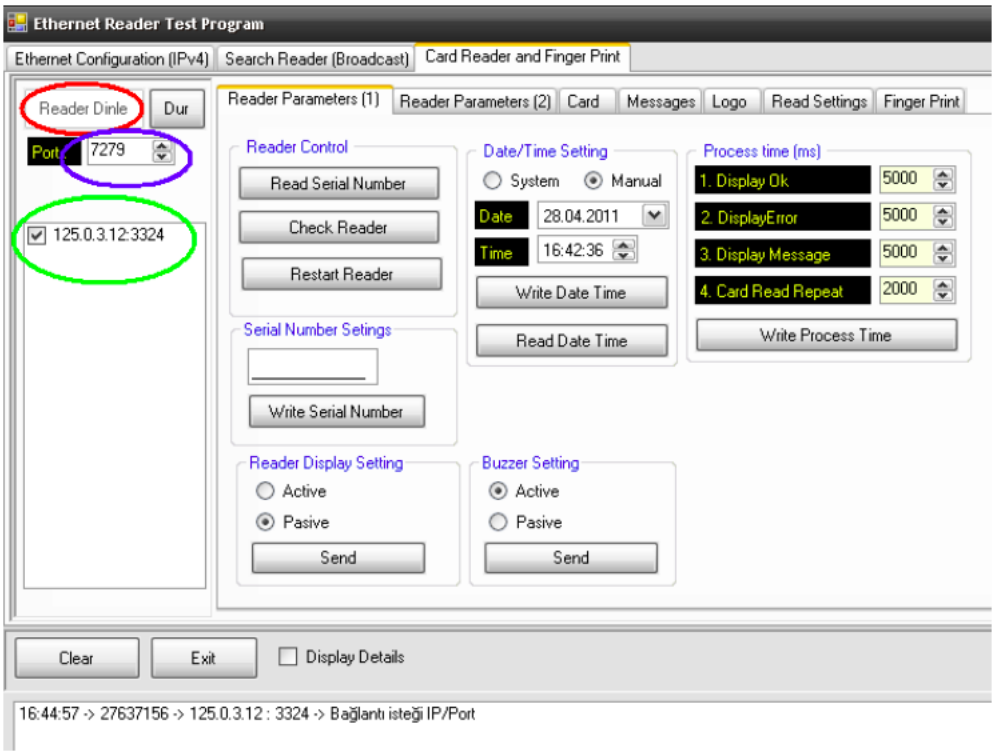


- **Write IP Address :** Writes the IP address to be used if reader DHCP feature is DISABLED.

- **Write Server IP :** Writes the Server PC IP address that the reader will connect to.
- **Write Test Server IP :** Writes the Server PC IP address that the reader will connect to temporarily. Connects to the address written via “Write Server IP”, when the reader is reset.
- **Writer Server Port NO :** Writes the Server PC port that the reader will connect to.
- **Write Server Name :** Writes the Server PC name that the reader will connect to. If a name is written, the reader will connect to DNS server and retrieves the IP of the PC with such name and connects to it. If no name is written, then the reader connects to the address written via “Write Server IP.
- **Write DNS IP :** Writes the IP of the DNS server that the reader will query.
- **Write Subnet Mask :** Writes the Subnet Mask values that the reader will use.
- **Write Gateway :** Writes the Gateway values that the reader will use.
- **Write DHCP Settings:** ENABLES or DISABLES the DHCP feature of the reader. If it is ENABLED, the IP is obtained automatically from the DHCP server, and if DISABLED, the IP address written via “Write IP Address” is used.

In order for the parameters other than Write Server IP, Write Test Server IP and Write Server Name to be enabled, the reader needs to be reset using the “Restart Reader” button. If reader shall be connected directly to the PC instead of over switch, CROSS cable must be used.

Once the reader settings are adjusted and disconnected by clicking “Client Disconnect” button, switch to “Card Reader and Finger Print” tab and click on “Listen Reader” button. Reader connects to the PC by using the Server IP address or name written in its memory. All the readers connected are added to the list. It is possible to write operating parameters by selecting each reader individually



Reader PC Communication Steps

The steps followed by the reader in order to establish connection with the PC on first power up are as follows:

1. Read the parameters stored in the memory.
2. Check Ethernet connection.

3. Connect to DHCP server and obtain data in DHCP is enabled, use the values read from the memory if disabled.
4. Connect to DNS Server if the Server name is written and obtain Server PC IP address. If Server name is not written or DNS Server is not responding, use the Server IP address read from the memory.
5. Attempt to connect the port of the Server IP reader from the memory

INSTALLATION

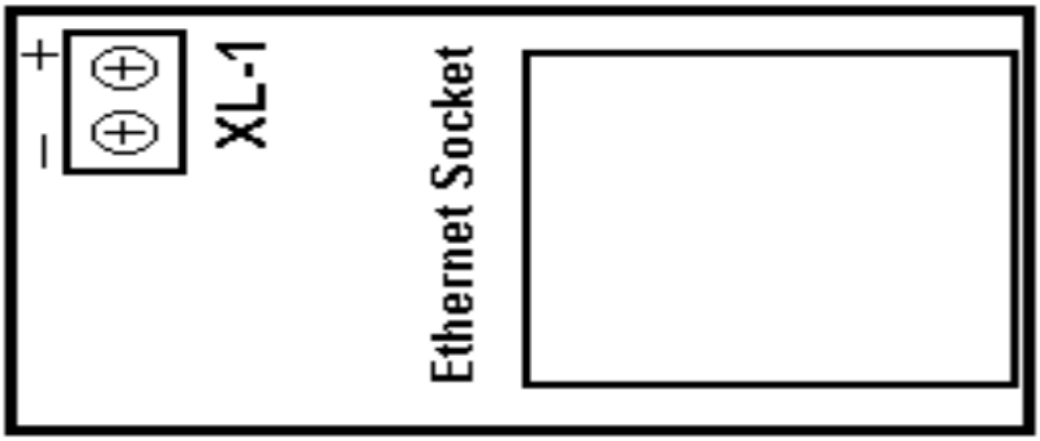
1. First, the mounting plate provided with the device is fixed on the wall by mounting 2 screw holes.
2. As shown in the connection diagram, adapter cables are connected to the external circuit connector, ethernet cable is connected to the ethernet socket of the external circuit, and the relay cables are connected to the connector.
3. Reader is fixed by pushing forward in a way that the reader shall be located in between mounting plate tabs.

WIRING

External Circuit Connection Diagram

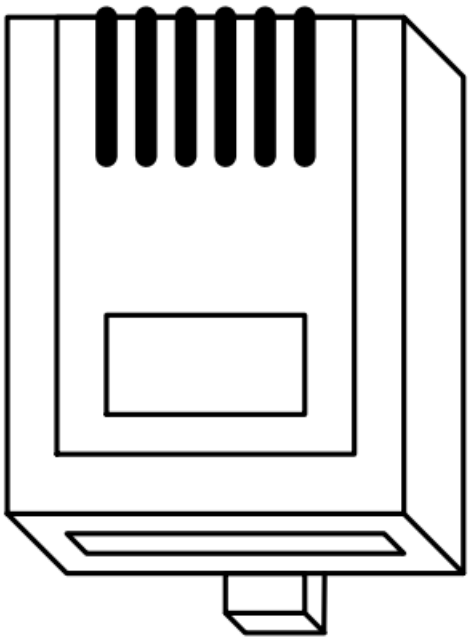
Ethernet cable and power connected to this external circuit. +9VDC and GND should be connected to XL-1 + and XL-1 – respectively. Ethernet cable should be connected to the ethernet socke

External circuit top view

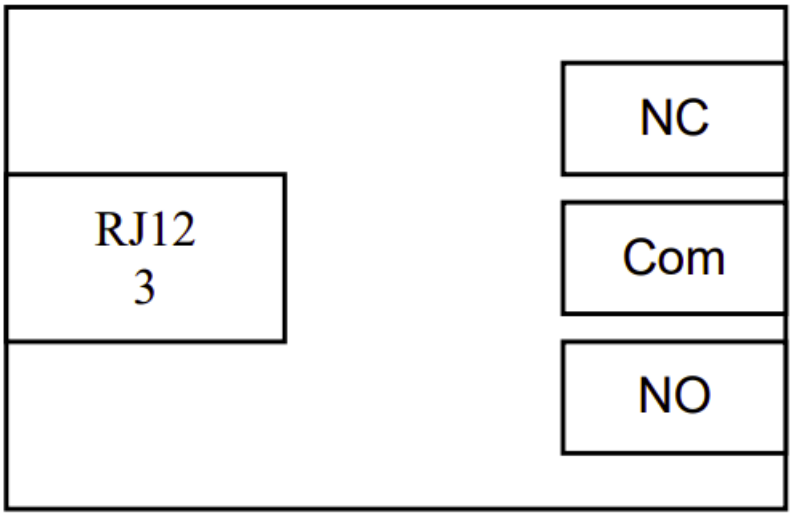


Relay Card Connection Diagram

RJ12 CONNECTOR



RELAY CARD



1. Empty —
2. Relay Data (in) Yellow
3. GND (in) Brown
4. Empty —
5. 5 VDC (in) Pink
6. Empty —

MAINTENANCE-REPAIR

Ethernet – Card reader/writer maintenance is performed by authorized technical service according to the maintenance procedure. As standard, checking the unit every 3 months and performing maintenance operations will extend the service life of the card reader/writer, and improve its efficiency. Maintenance period and intervals may vary depending on climatic conditions and operating conditions.

Call technical service immediately in case of breakdowns.

DO NOT ALLOW UNAUTHORIZED PERSONNEL PERFORM MAINTENANCE OR REPAIR OPERATIONS ON

THE DEVICE.

HANDLING & STORAGE

Always handle the products in their original packaging. Follow the warnings on the packaging while loading and stacking, and do not stack more than 10 units.

CAUTIONS

Do not allow unauthorized personnel perform maintenance or repair operations on the device. Please ask for assistance from authorized technical service for peripherals externally connected to the card reader/writer.

Do not spray water on the device.

Please follow the warnings and operating conditions written on the device and specified in the user manual carefully

Documents / Resources

	TSH Ethernet Mifare Card Reader [pdf] User Manual Ethernet Mifare Card Reader, Mifare Card Reader, Card Reader, Reader