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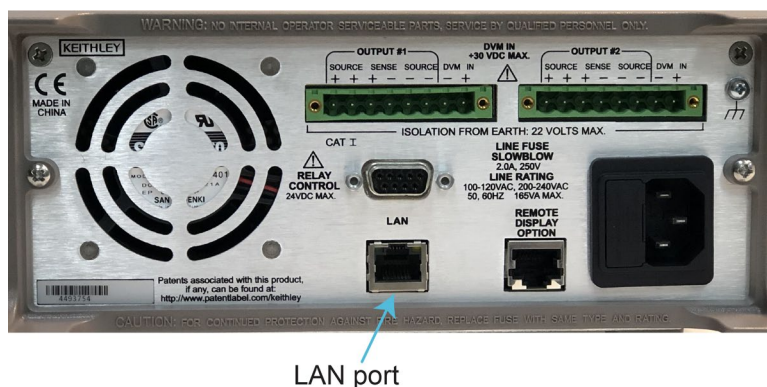
Communications and Settings Instructions

Overview

This document describes how to use the Model 2306-LAN instrument and connect to a local area network (LAN).

The Model 2306-LAN is a TCP/IP protocol supported instrument. There is one LAN port (located on the rear panel of the instrument) that supports full connectivity on a 10 Mbps or 100 Mbps network. The 2306-LAN automatically detects the network speed.

Figure 1: Model 2306-LAN connection location



LAN port

NOTE

Contact your network administrator to confirm your specific network requirements before setting up a LAN connection.

If you have problems setting up the LAN, refer to the [LAN troubleshooting](#) (on page 4) section.

Setup LAN communication on the instrument

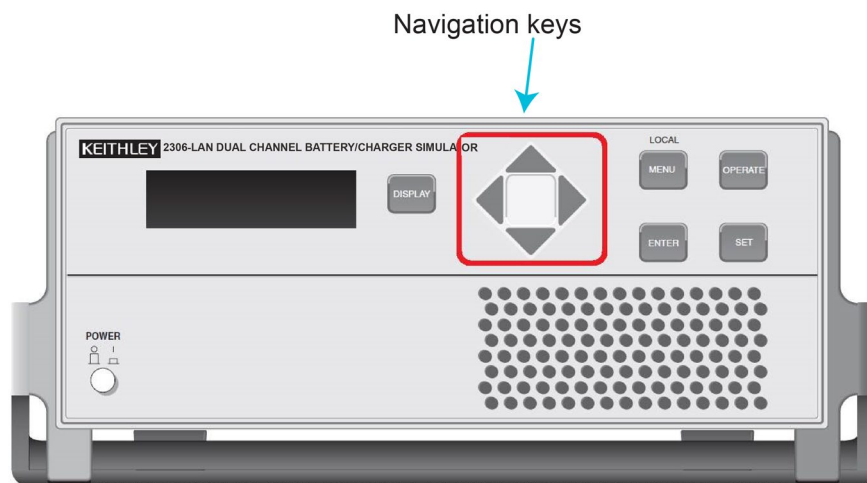
The following information describes how to set up manual or automatic LAN communications using the front panel of the instrument.



Check communication settings

Before configuring the LAN, you can check the communications settings on the instrument without making any changes. Use the navigation keys as indicated in the following figure to navigate through the menu items.

Figure 2: Model 2306-LAN front panel



To check communications settings on the instrument from the front panel:

1. Press the **MENU** key to activate the menu and use the ▲ and ▼ to navigate through the primary menu items.
2. Navigate until **VIEW OR CHANGE: LAN** is displayed on the screen.
3. Press the **ENTER** key to activate the LAN menu, use the ▲ and ▼ to navigate through the LAN menu items.
 - a. **METHOD** (DHCP method)
 - b. **IP-ADDRESS**
 - c. **GATEWAY**
 - d. **SUBNET-MASK**
 - e. **LAN RESET**
 - f. **PORT**
 - g. **MAC_ADDRESS** (this cannot be changed)
4. Press the **ENTER** key to activate the menu and see the settings for the interface.
5. Press the **MENU** key to leave the menu without making any changes.

Manually setup the LAN configuration

The following information details how to setup the 2306-LAN IP configuration, IP address, gateway, subnet-mask, port, and LAN configuration manually on the instrument from the front panel.

NOTE

Contact your corporate information technology (IT) department to secure a valid IP address for the instrument when placing the instrument on a corporate network.

The instrument IP address has leading zeros, but the computer IP address does not.

To manually setup the instrument from the front panel:

1. Press the **MENU** key to activate the menu, use the **▲** and **▼** to navigate through the primary menu items.
2. Navigate until **VIEW OR CHANGE: LAN** is displayed on the screen.
3. Press the **ENTER** key to activate the LAN menu, use the **▲** and **▼** to navigate through the LAN menu items.
4. Setting the IP configuration:
 - a. Use the **▲** and **▼** to navigate through the LAN menu items.
 - b. Navigate until **METHOD** is displayed on the screen; press the **ENTER** key to activate the menu (note the default setting is **MANUAL**).
 - c. Use the **▲** and **▼** to change the IP configuration method.
 - d. Press **ENTER** to save and return to the main menu. Press **MENU** to leave the menu without making any changes.
5. Setting the IP address:
 - a. Use the **▲** and **▼** to navigate through the LAN menu items.
 - b. Navigate until **IP-ADDRESS** is displayed on the screen; press the **ENTER** key to activate the menu.
 - c. Default IP-address is 192.168.000.002.
 - d. Use the **▲**, **▼**, **◀** and **▶** to enter a valid IP address.
 - e. Press **ENTER** to save and return to the main menu. Press **MENU** to leave the menu without making any changes.
6. Setting the GATEWAY:
 - a. Use the **▲** and **▼** to navigate through the LAN menu items.
 - b. Navigate until **GATEWAY** is displayed on the screen; press the **ENTER** key to activate the menu.
 - c. Default GATEWAY is 192.168.000.001.
 - d. Use the **▲**, **▼**, **◀** and **▶** to enter a valid IP address.
 - e. Press **ENTER** to save and return to the main menu. Press **MENU** to leave the menu without making any changes.
7. Setting the SUBNET-MASK:
 - a. Use the **▲** and **▼** to navigate through the LAN menu items.
 - b. Navigate until **SUBNET-MASK** is displayed on the screen; press the **ENTER** key to activate the menu.
 - c. Default SUBNET-MASK is 255.255.255.000.
 - d. Use the **▲**, **▼**, **◀** and **▶** to enter a valid IP address.
 - e. Press **ENTER** to save and return to the main menu. Press **MENU** to leave the menu without making any changes.
8. Setting the PORT:
 - a. Use the **▲** and **▼** to navigate through the LAN menu items.
 - b. Navigate until **PORT** is displayed on the screen, press the **ENTER** key to activate the menu.
 - c. Default PORT is 5025. Range (0 ~ 65535).
 - d. Use the **▲**, **▼**, **◀** and **▶** to enter a valid IP address.
 - e. Press **ENTER** to save and return to the main menu. Press **MENU** to leave the menu without making any changes.
9. Reset the LAN configuration:
 - a. Use the **▲** and **▼** to navigate through the LAN menu items.
 - b. Navigate until **LAN RESET** is displayed on the screen, press the **ENTER** key to activate the menu.
 - c. Use the **▲** and **▼** to navigate to the **LAN RESET** menu. Select **YES** to reset all LAN configurations (select **CANCEL** to keep the current LAN configuration).
 - d. Press **ENTER** for the LAN configuration to take effect and return to main menu. Press **MENU** to leave the menu without making any changes.

AUTO-MDIX

NOTE

The Model 2306-LAN does not support automatic MDIX (medium dependent interface crossover) feature.

Since the Model 2306-LAN instrument does not support the AUTO-MDIX feature, it is recommended to use straight-through cables to connect to switches or routers and crossover cables to connect to devices such as servers or workstations. However, if the Model 2306-LAN instrument is connected to a personal computer, router, Ethernet switch, or other devices that contain an enabled AUTO-MDIX network card, you can use either type of cable.

LAN troubleshooting

If you are unable to connect to the instrument, check the following items:

- Verify that the network cable is in the LAN port on the rear panel of the instrument. Refer to the [Overview](#) (on page 1) topic for the location of the LAN port.
- Verify that the network cable is in the correct port on the computer. Note that the LAN port of a laptop may be disabled when the laptop is in a docking station.
- Verify that the correct ethernet card's configuration information was used during the setup procedure.
- Verify that the computer's network card is enabled.
- Verify that the instrument's IP address is compatible with the IP address on the computer.
- Verify that the instrument's subnet mask address is the same as the computer's subnet mask address.
- Restart your computer and the instrument.

If the above actions do not correct the problem, contact your system administrator.

The following safety precautions should be observed before using this product and any associated instrumentation. Although some instruments and accessories would normally be used with nonhazardous voltages, there are situations where hazardous conditions may be present.

This product is intended for use by personnel who recognize shock hazards and are familiar with the safety precautions required to avoid possible injury. Read and follow all installation, operation, and maintenance information carefully before using the product. Refer to the user documentation for complete product specifications.

If the product is used in a manner not specified, the protection provided by the product warranty may be impaired.

The types of product users are:

Responsible body is the individual or group responsible for the use and maintenance of equipment, for ensuring that the equipment is operated within its specifications and operating limits, and for ensuring that operators are adequately trained.

Operators use the product for its intended function. They must be trained in electrical safety procedures and proper use of the instrument. They must be protected from electric shock and contact with hazardous live circuits.

Maintenance personnel perform routine procedures on the product to keep it operating properly, for example, setting the line voltage or replacing consumable materials. Maintenance procedures are described in the user documentation. The procedures explicitly state if the operator may perform them. Otherwise, they should be performed only by service personnel.

Service personnel are trained to work on live circuits, perform safe installations, and repair products. Only properly trained service personnel may perform installation and service procedures.

Keithley products are designed for use with electrical signals that are measurement, control, and data I/O connections, with low transient overvoltages, and must not be directly connected to mains voltage or to voltage sources with high transient overvoltages. Measurement Category II (as referenced in IEC 60664) connections require protection for high transient overvoltages often associated with local AC mains connections. Certain Keithley measuring instruments may be connected to mains. These instruments will be marked as category II or higher.

Unless explicitly allowed in the specifications, operating manual, and instrument labels, do not connect any instrument to mains.

Exercise extreme caution when a shock hazard is present. Lethal voltage may be present on cable connector jacks or test fixtures. The American National Standards Institute (ANSI) states that a shock hazard exists when voltage levels greater than 30 V RMS, 42.4 V peak, or 60 VDC are present. A good safety practice is to expect that hazardous voltage is present in any unknown circuit before measuring.

Operators of this product must be protected from electric shock at all times. The responsible body must ensure that operators are prevented access and/or insulated from every connection point. In some cases, connections must be exposed to potential human contact. Product operators in these circumstances must be trained to protect themselves from the risk of electric shock. If the circuit is capable of operating at or above 1000 V, no conductive part of the circuit may be exposed.

For maximum safety, do not touch the product, test cables, or any other instruments while power is applied to the circuit under test. ALWAYS remove power from the entire test system and discharge any capacitors before: connecting or disconnecting cables or jumpers, installing or removing switching cards, or making internal changes, such as installing or removing jumpers.

Do not touch any object that could provide a current path to the common side of the circuit under test or power line (earth) ground. Always make measurements with dry hands while standing on a dry, insulated surface capable of withstanding the voltage being measured.

For safety, instruments and accessories must be used in accordance with the operating instructions. If the instruments or accessories are used in a manner not specified in the operating instructions, the protection provided by the equipment may be impaired.

Do not exceed the maximum signal levels of the instruments and accessories. Maximum signal levels are defined in the specifications and operating information and shown on the instrument panels, test fixture panels, and switching cards.

Chassis connections must only be used as shield connections for measuring circuits, NOT as protective earth (safety ground) connections.

The **WARNING** heading in the user documentation explains hazards that might result in personal injury or death. Always read the associated information very carefully before performing the indicated procedure.

The **CAUTION** heading in the user documentation explains hazards that could damage the instrument. Such damage may invalidate the warranty.

The **CAUTION** heading with the  symbol in the user documentation explains hazards that could result in moderate or minor injury or damage the instrument. Always read the associated information very carefully before performing the indicated procedure. Damage to the instrument may invalidate the warranty.

Instrumentation and accessories shall not be connected to humans.

Before performing any maintenance, disconnect the line cord and all test cables.

To maintain protection from electric shock and fire, replacement components in mains circuits — including the power transformer, test leads, and input jacks — must be purchased from Keithley. Standard fuses with applicable national safety approvals may be used if the rating and type are the same. The detachable mains power cord provided with the instrument may only be replaced with a similarly rated power cord. Other components that are not safety-related may be purchased from other suppliers as long as they are equivalent to the original component (note that selected parts should be purchased only through Keithley to maintain accuracy and functionality of the product). If you are unsure about the applicability of a replacement component, call a Keithley office for information.

Unless otherwise noted in product-specific literature, Keithley instruments are designed to operate indoors only, in the following environment: Altitude at or below 2,000 m (6,562 ft); temperature 0 °C to 50 °C (32 °F to 122 °F); and pollution degree 1 or 2.

To clean an instrument, use a cloth dampened with deionized water or mild, water-based cleaner. Clean the exterior of the instrument only. Do not apply cleaner directly to the instrument or allow liquids to enter or spill on the instrument. Products that consist of a circuit board with no case or chassis (e.g., a data acquisition board for installation into a computer) should never require cleaning if handled according to instructions. If the board becomes contaminated and operation is affected, the board should be returned to the factory for proper cleaning/servicing.

Safety precaution revision as of June 2017.