475
FIELD
COMMUNICATOR

sisco

Getting Started

⚠ WARNING

Explosions could result in serious injury or death:
Use in an explosive environment must be in accordance with the appropriate local, national, and international standards, codes, and practices. Please review the Reference Information and Product Certifications sections of the 475 Field Communicator User's Manual for any restrictions associated with safe use.
Electrical shock can result in serious injury or death.

⚠ WARNING

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference.
(2) this device must accept any interference received, including interference that may cause undesired operation.

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FOUNDATION is a trademark of the Fieldbus Foundation.
Bluetooth is a registered trademark of the Bluetooth SIG, Inc.
All other marks are the property of their respective owners.

INTRODUCTION

The 475 Field Communicator Getting Started Guide provides basic guidelines, precautions, and setup information for the 475 Field Communicator. It does not provide in-depth instructions for configuration, diagnostics, maintenance, service, troubleshooting, or Intrinsically Safe (IS) installations.
The 475 Field Communicator supports SISCO fieldbus devices,

letting you configure or troubleshoot in the field. Electronic Device Description Language (EDDL) technology enables the 475 Field Communicator to communicate with a variety of devices independent of device manufacturer.

475 FIELD COMMUNICATOR OVERVIEW

The portable 475 Field Communicator includes a color LCD touch screen, a Dual-core Lithium Ion battery (Power Module), a Central Processing Unit (CORTEX-M3), bulk memory unit (FLASH) and integral fieldbus communication circuitry.

When using the 475 Field Communicator to communicate with devices, follow all standards and procedures applicable to the location. Failure to comply may result in equipment damage and/ or personal injury. Understand and comply with the sections in this manual.

Working in a Hazardous Area

An Intrinsically Safe (IS-approved) 475 Field Communicator can be used in Zone 0 (FM and CSA only), Zone 1, or Zone 2, for Group IIC, and Class I, Division 1 and Division 2, Groups A, B, C, and D locations.

An IS-approved 475 Field Communicator may be connected to loops or segments that are attached to equipment located in Zone 0, Zone 1, Zone 2, for Group IIC; Zone 20, Zone 21, Zone 22, and Class I, Division 1 and Division 2, Groups A, B, C, and D locations.

IS-approved 475 Field Communicators are ordered with the KL option and have an additional label on the back of the communicator that lists the approvals.

CAUTION
You cannot install or remove the Li-Ion battery in a hazardous area environment.   You cannot charge the battery in this environment .   The power supply/charger is not IS-approved.

Using the Touch Screen and Keypad

The touch screen and keypad let you select menu items and enter text. Tap the screen with the provided stylus or use the up and down arrow keys on the keypad to select a menu item. Double-tap the selected item on the screen or press the right arrow key on the keypad to open a menu item.

SISCO and Foundation Fieldbus
Communication Terminals (top)

Touch Screen Display

Power Key and Light

Strap Attachment (side)

Navigation Keys
(four arrow keys)

Tab Key

Li-lon Battery (back) and
System Card (internal)

Lights IIuminated by
Pressing the Charge
Indicator Button (side)

Charge Indicator
Button (side)

Backlight Key

Strap Attachment
(side)

Enter Key

Function Key
and Light
(for multiple-key
combination
functionality)

Alphanumeric
Keypad

Green Power
Supply Charger
Connector on the
Battery(side)

Strap Attachment (side)

Figure1   475 Field Communicator

CAUTION
You cannot use sharp instruments contact the touch screen, preferably the stylus included with the 475 Field Communicator. Sharp instruments, such as screwdrivers, can damage the touch screen and void the warranty. Repairing the touch screen requires replacement of the entire display assembly, which is possible only at an authorized service center.

Battery and Power Supply/Charger

Understand and follow the precautions below before using your battery or power supply/charger.

- Protect the battery and power supply/charger from moisture, and respect operating and storage temperature limits. See the 475 Field Communicator User's Manual for temperature limits.
- Do not cover the battery or power supply/charger, subject it to prolonged periods of direct sunlight, or place it upon or next to heat-sensitive materials.
- Charge the battery with only the power supply/charger. The power supply/charger should not be used with other products. Failure to comply may permanently damage your 475 Field Communicator and void the IS approval and the warranty.
- Do not open or modify the battery or power supply/charger. There are no user-serviceable components or safety elements inside. Opening or modifying them will void the warranty and could cause personal harm.
- Follow all applicable regulations when transporting a Li-Ion battery.

Charging the Battery

Prior to first portable use, fully charge the Li-Ion battery. The power supply/charger has a green connector to match the connector on the battery. The battery can be charged separately or while attached to the 475 Field Communicator. A full charge takes

approximately eight hours, and the 475 is fully operable when charging. An overcharge condition will not occur if power supply/ charger remains connected after charging completes.

To maintain performance, charge the battery frequently, preferably after each use. Limit full discharges, if possible. Additional information about maintaining the battery is in the475 Field Communicator User's Manual.

Power Supply/Charger Lights

Five green lights are on the power supply/charger to indicate the conditions below.

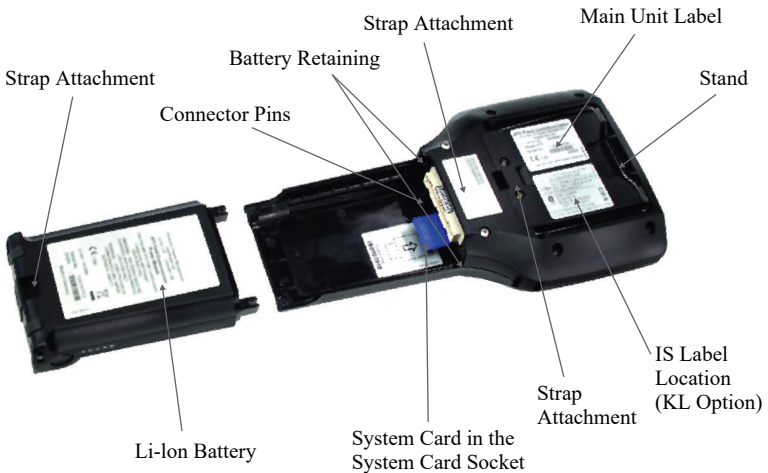Button can illuminate the lights.

Charge Indicator

Strap Attachment

Main Unit Label

Battery Retaining

Stand

Strap Attachment

Connector Pins

Li-lon Battery

System Card in the
System Card Socket

Strap
Attachment

IS Label
Location
(KL Option)

Figure 2   Back of the 475 Field Communicator

Color	Condition
Five green lights on bright	The battery is fully charged
2~4 Green lights on	The remaining charge in the battery is from 20% to 80%.
one green light on	The remaining charge in the battery is low, please charge.
All lights off	Please connect the charger , at lease one green light should be on . If all green lights are still off, contact Technical Support for more information.

INSTALLING THE SYSTEM CARD AND BATTERY

1. Remove the communication line.
2. Place the 475 Field Communicator face down on a level, secure surface.
3. With the battery removed, slide the Secure Digital System Card (labeled System Card), with the card contacts facing up, into the System Card socket until it clicks. The System Card socket is spring-loaded. See Figure 2 for the System Card socket ocation. The System Card is not locked into the System Card socket in Figure 2.

CAUTION

The System Card must be supplied by the professional manufacturer.

4. With the 475 Field Communicator still face down, ensure the two battery retaining screws are loose.
5. Align the battery with the sides of 475 Field Communicator, and carefully slide the battery forward until it is secure.

> **CAUTION**
>
> The connector pins may be damaged if the battery and 475 Field Communicator are improperly aligned.

6. Carefully hand tighten the two battery retaining screws. (Do not over tighten, 0.5Nm maximum torque load.) The tops of the screws should be nearly flush with the 475 Field Communicator.

REMOVING THE BATTERY AND SYSTEM CARD

1. Remove the communication line.
2. With the 475 Field Communicator off, place it face down on a level, secure surface.
3. Loosen the two battery retaining screws.
4. Slide the battery off the 475 Field Communicator.

> **CAUTION**
>
> The connector pins may be damaged if you pull the battery up rather than slide it off the 475 Field Communicator.

5. Push the System Card into the System Card socket until it clicks and releases.
6. Slide the System Card out of the System Card socket.

STARTING THE 475 FIELD COMMUNICATOR

Before startup, ensure the 475 Field Communicator is not damaged, the battery is fully seated, all screws are sufficiently tightened, and the communication terminals are free of dirt and debris.

To start the 475 Field Communicator:

1. Press and hold the power key on the keypad for 1 second until startup, The Field Communicator Main Menu displays.
2. Use the touch screen or up and down arrow keys to select menu items. To open a selected menu item, double-tap it or use the

right arrow key.

3. To Shut down, press and hold the Power key on the keypad for 1 second.

CONNECTING TO A DEVICE

Use the provided lead set to connect the 475 Field Communicator to the loop, segment or device. Three communication terminals for the lead set are on the top of the 475 Field Communicator. Each red terminal is a positive connection for its protocol, and the black terminal is a common terminal shared by both protocols. An access door ensures that only one pair of terminals is exposed at any one time. Several markings indicate which pair of terminals is for which protocol.

Wiring Diagrams

Figure 3 shows how to connect the 475 Field Communicator to a SISCO loop.

SISCO Device

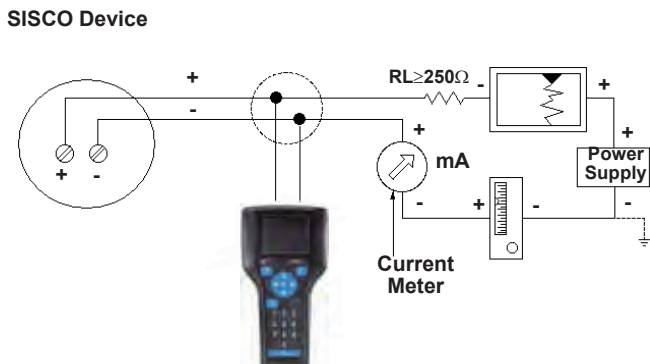Figure 3. Connecting to a SISCO Loop

Figure 4 shows how to connect the 475 Field Communicator directly to the terminals of a SISCO device.

Figure 4. Connecting Directly to a SISCO Device

Figure 5 shows how to connect the optional 250 ohm resistor. Attaching a resistor is necessary if less than 250 ohms resistance is present in the SISCO loop.
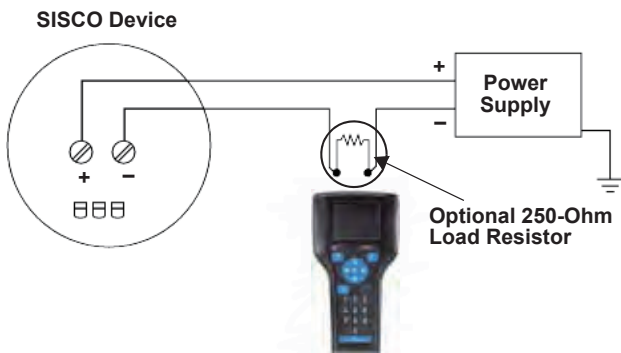

Figure 5. Connecting with a 250 Ohm Resistor

To temporarily install the optional 250 ohm load resistor:

1. Insert the load resistor into the lead set jacks.

2. Open the loop to allow connection of the resistor in series in the loop.

3. Close the loop using the lead set connectors.

Only connections to a SISCO loop are allowed. Refer to the latest version of the 475 Field Communicator User's Manual for details.

MAINTENANCE AND REPAIR

Any maintenance, repair, or replacement of components not listed below must be performed by specially trained personnel at an authorized service center. You can perform common maintenance procedures listed below:

• Cleaning the exterior. Use only a dry, lint-free towel or dampen the towel with a mild soap and water solution.

• Charging, removing, and replacing the battery.

• Removing and replacing the System Card.

• Removing and replacing the stand.

• Ensuring that all exterior screws are sufficiently tightened.

• Ensuring that the communication terminal recess is free of dirt and debris.

WASTE DISPOSAL

Products with the following label comply with the Waste Electrical and Electronic Equipment (WEEE) directive, 2002/96/EC, which applies to European Union (EU) member states only. The label indicates this product should be recycled and not treated as household waste. if it is necessary to discard any part of the 475 Field Communicator, follow the waste-disposal regulations applicable in your location.

HAZARDOUS SUBSTANCES

Products with the following label are lead-free and comply with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive, 2002/95/EC, which applies to EU member states only. The purpose of the directive is to limit the use of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB), and polybrominated Pbdiphenyl ether (PBDE) flame retardants in electronic equipment.

PRODUCT CERTIFICATIONS

Overview

All 475 Field Communicators have the main unit label (see Figure 2). Intrinsically Safe (KL option) 475 Field Communicators also have a label opposite the main unit label. If the 475 Field Communicator does not contain this label (NA option), it is not Intrinsically Safe.

The Industry Canada (IC), Federal Communications Commission (FCC), and Radio and Telecommunications Terminal Equipment (R&TTE) approvals apply to only 475 Field Communicators licensed for Bluetooth.

IC

This Class A digital apparatus complies with Canadian ICES-003.

FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any modifications made to this device that are not approved may void the authority granted to the user by the FCC to operate this equipment.

European Directive Information — CE Compliance

Electromagnetic Compatibility (2004/108/EC)

Tested to the EN 61326-1 specification.

R&TTE

This equipment is in conformity with the Radio and Telecommunications

Terminal Equipment (R&TTE) Directive 1999/5/EC.

ATEX Directive (94/9/EC) (KL option only)

Process Management complies with the ATEX Directive. Applicable standards are EN 60079-0, EN 60079-11, EN 60079-26, and EN 60079-27. Specific ATEX Directive Information is located within this document and the 475 Field Communicator User's Manual.

Hazardous Locations Certifications (KL option only)

The Intrinsic Safety approvals listed in this section include compliance with the FISCO requirements.

SISCO Intrinsically Safe Electrical Parameters

Input Parameters	
Ui	= 30Volt DC
Ii	= 100mA
Pi	= 1.0Watt
Li	= 0
Ci	= 0
Input Parameters	
Uo	= 1.9Volt DC
Io	= 32µA

Main Menu Introduction

The Device Setup on the SISCO Online menu accesses every configurable parameter for the connected device. Some devices may not display a Device Setup menu. Check your device documentation for more information. Double-tap Device setup to view the process variables, diagnostics and service, basic setup, detailed setup, and review menus.

Process Variables

The Process Variables menu lists all process variables and their values. Process variables are continuously updated when this window is displayed.

Diagnostics and Service

The Diagnostics and Service menu offers device and loop tests as well as calibration options. The diagnostics and service operations that are available vary widely from device to device and are defined

in the device description.

The Test device menu lists the status as well as self and master test of the device. Test device initiates a diagnostic routine at the device and can report an electronics failure, as well as other failures that can affect performance.

Loop test is used to set the output of the device at a specified analog value, and may be used to test the integrity of the loop and the operation of indicators, recorders, or similar devices in the loop.

Calibration is used to perform such operations as performing a sensor trim, D/A trim, and scaled D/A trim.

Basic setup

The Basic setup menu provides quick access to a number of configurable parameters including tag, unit, range values, and damping.

The options available in the Basic setup menu are the most fundamental tasks that can be performed with a device. These tasks are a subset of the options available under the Detailed setup menu.

The Tag identifies a specific device. Changing the unit option affects the engineering units that are displayed. Changing range values modifies the analog output scaling. Changing damping affects the response time of the transmitter and is often used to smooth the output when there are rapid input variations.

A modified parameter is highlighted yellow and an asterisk appears to indicate the change has not been sent to the device. Tap Send to update the device.

Detailed setup

The Detailed setup menu provides access to every editable device parameter and all device functions. The Detailed setup menu varies widely from one SISCO device to another. Functions in this menu can include tasks such as characterization, configuration, and sensor and output trims.

Review

The Review menu lists all of the static parameters read from the connected device, including information about the device and sensor setup and limitations. It also may include information about the connected device such as tag, materials of construction, and device software revision.

Main menu

1 Process variables
- 1 PV
- 2 PV % rnge
- 3 PV Loop current

2 Diag/Service
- **1 Test device**
  - 1 Self test
- 2 Loop test
- **3 Calibration**
- 4 D/A trim
  - 1 Apply values
  - **2 Enter values**
    - 1 PVURV
    - 2 PVLRV
    - 3 PV USL
    - 4 PV LSL

3 Basic setup
- 1 Tag
- 2 PV Unit
- **3 Range values**
  - 1 PV LRV
  - 2 PV URV
  - 3 PV Unit
  - 4 PV LSL
  - 5 PV USL
- **4 Device information**
  - 1 Distributor
  - 2 Model
  - 3 Dev id
  - 4 Tag
  - 5 Date
  - 6 Write protect
  - 7 Descriptor
  - 8 Message
  - 9 PV Snsr s/n
  - Final asmbly num
  - Revision #'s
    - 1 Universal rev
    - 2 Fld dev rev
    - 3 Software rev
- 5 PV Xfer fnctn
- **6 PV Damp**

4 Detailed setup
- **1 Sensors**
  - 1 PV
  - 2 PV Snsr unit
  - **3 Sensor information**
    - 1 PV LSL
    - 2 PV USL
    - 3 PV Min span
- **2 Signal condition**
  - 1 PV Damp
  - 2 PV URV
  - 3 PV LRV
  - 4 PV Xfer fnctn
  - 5 PV % rnge
- **3 Output condition**
  - 1 Analog output
  - **2 SISCO output**
    - 1 Poll addr
    - 2 Num req preams
- **4 Device information**
  - 1 Distributor
  - 2 Model
  - 3 Dev id
  - 4 Tag
  - 5 Date
  - 6 Write protect
  - 7 Descriptor
  - 8 Message
  - 9 PV Snsr s/n
  - Final asmbly num
  - **Revision #'s**
    - 1 Universal rev
    - 2 Fld dev rev
    - 3 Software rev

5 Review
- 1 Model
- 2 Distributor
- 3 PV unit
- 4 PV USL
- 5 PV LSL
- 6 PV Min span
- 7 PV Damp
- 8 PV Xfer fnctn
- 9 PV Rnge unit
- PV URV
- PV LRV
- PV Snsr s/n
- Write protect
- Manufacturer
- Dev id
- Tag
- Descriptor
- Message
- Date
- Universal rev
- Fld dev rev
- Software rev
- Poll addr
- Num req preams