HIOKI

INSTRUCTION MANUAL

3912-20

COMMUNICATION BASE

HIOKI E. E. CORPORATION

Contents

Introduction

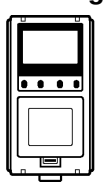
Thank you for purchasing the HIOKI “3912-20 COMMUNICATION BASE”. To obtain maximum performance from the product, please read this manual first, and keep it handy for future reference.

- Windows is a registered trademark of Microsoft Corporation.
- Pentium is a registered trademark of Intel Corporation.

Inspection

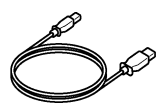
When you receive the product, inspect it carefully to ensure that no damage occurred during shipping. In particular, check the accessories, panel keys, and connectors. If damage is evident, or if it fails to operate according to the specifications, contact your dealer or Hioki representative.

Checking the contents of the package



Model 3912-20

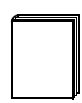
LR03 Alkaline Battery (4)



USB Cable (1)

COMMUNICATION UTILITY (CD-R) (1)

COMMUNICATION UTILITY Operation Guide (1)



Instruction Manual (1)

Before using the product

Before using the product the first time, verify that it operates normally to ensure that the no damage occurred during storage or shipping. If you find any damage, contact your dealer or Hioki representative.

Shipping precautions

When transporting the product, use the original packing materials in which it was shipped, and pack in a double carton. Damage occurring during transportation is not covered by warranty.

Safety Notes

DANGER

This product is designed to conform to IEC 61010 Safety Standards, and has been thoroughly tested for safety prior to shipment. However, mishandling during use could result in injury or death, as well as damage to the product. Be certain that you understand the instructions and precautions in the manual before use. We disclaim any responsibility for accidents or injuries not resulting directly from product defects.

Safety Symbols

This manual contains information and warnings essential for safe operation of the product and for maintaining it in safe operating condition. Before using the product, be sure to carefully read the following safety notes.

⚠	In the manual, the ⚠ symbol indicates particularly important information that the user should read before using the product. The ⚠ symbol printed on the product indicates that the user should refer to a corresponding topic in the manual (marked with the ⚠ symbol) before using the relevant function.
⎓	Indicates DC (Direct Current).

The following symbols in this manual indicate the relative importance of cautions and warnings.

DANGER	Indicates that incorrect operation presents an extreme hazard that could result in serious injury or death to the user.
WARNING	Indicates that incorrect operation presents a significant hazard that could result in serious injury or death to the user.
CAUTION	Indicates that incorrect operation presents a possibility of injury to the user or damage to the product.
NOTE	Advisory items related to performance or correct operation of the product.

Other Symbols

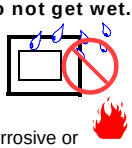
	Indicates the prohibited action.
❖	Indicates the reference.
*	Indicates terminology explained at the bottom of the page.

Usage Notes

Follow these precautions to ensure safe operation and to obtain the full benefits of the various functions.

⚠WARNING

Do not get wet.



Corrosive or explosive gases

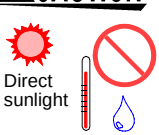
- **To avoid damage to the product, do not allow the product to get wet, and do not use it when your hands are wet.**
- **Do not use the product where it may be exposed to corrosive or combustible gases. The product may be damaged.**

⚠CAUTION

To avoid damage to the product, protect it from vibration or shock during transport and handling, and be especially careful to avoid dropping.

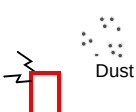
Setting up the Product

⚠CAUTION



Direct sunlight

High temperature
High humidity



Dust

Electomagnetic radiation

- This product should be installed and operated indoors only, between 0 and 40°C and 80% RH or less. If used outside the specified environmental ranges for operation (or storage), the operation of the unit cannot be guaranteed.
- Take care to avoid condensation. In particular, if there is a sudden change of temperature (for example moving from a cold place to a warm one), condensation is likely to occur.
- Do not store or use the product where it could be exposed to direct sunlight, high temperature or humidity, or condensation. Under such conditions, the product may be damaged and insulation may deteriorate so that it no longer meets specifications.
- This product is not designed to be entirely water- or dust-proof. To avoid damage, do not use it in a wet or dusty environment.
- Do not use the product near a device that generates a strong electromagnetic field or electrostatic charge, as these may cause erroneous measurements.

Batteries

⚠WARNING

- **To avoid electric shock when replacing the batteries, first disconnect the connection cable from the object to be measured.**
- **Do not mix old and new batteries, or different types of batteries. Also, be careful to observe battery polarity during installation. Otherwise, poor performance or damage from battery leakage could result.**
- **To avoid the possibility of explosion, do not short circuit, disassemble or incinerate batteries.**
- **Handle and dispose of batteries in accordance with local regulations.**

NOTE To avoid corrosion from battery leakage, remove the batteries from the product if it is to be stored for a long time.

Care and handling of CD-R

⚠CAUTION

- Always hold the disc by the edges, so as not to make fingerprints on the label side or scratch the printing.
- Never touch the recorded side of the disc. Do not place the disc directly on anything hard.
- Do not wet the disc with volatile alcohol or water, as there is a possibility of the label printing disappearing.
- To write on the disc label surface, use a spirit-based felt pen. Do not use a ball-point pen or hard-tipped pen, because there is a danger of scratching the surface and corrupting the data. Do not use adhesive labels.
- Do not expose the disc directly to the sun's rays, or keep it in conditions of high temperature or humidity, as there is a danger of warping, with consequent loss of data.
- To remove dirt, dust, or fingerprints from the disc, wipe with a dry cloth, or use a CD cleaner. Always wipe radially from the inside to the outside, and do no wipe with circular movements. Never use abrasives or solvent cleaners.
- Hioki shall not be held liable for any problems with a computer system that arises from the use of this CD-R, or for any problem related to the purchase of a Hioki product.

Overview 1

1.1 Product Overview

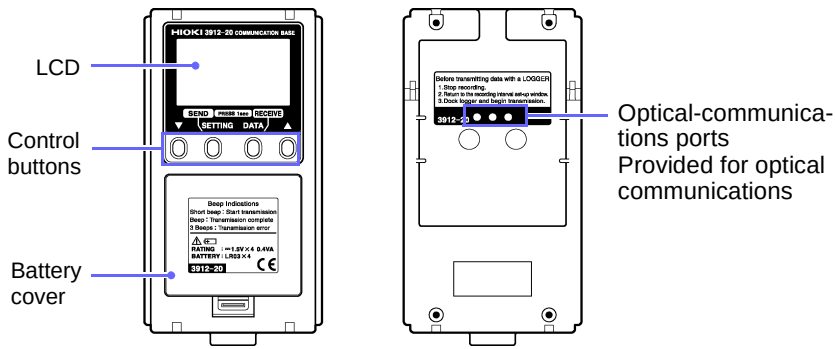
The 3912-20 COMMUNICATION BASE is designed to load data from the Logger Series and transfer loaded data to the PC via a USB interface. Data can be loaded from the 3912-20 onto the PC for analysis using the software included with the 3912-20 (Communication Utility).

Features

- Capable of collecting up to 16 channels of data when connected to logger.
- Capable of storing setting conditions (clock, interval, recording start time, etc.) in memory and loading settings to logger when connected to logger.
- The LCD allows data obtained from the Logger Series to be viewed on the spot, and allows the data-transmission settings that will be transmitted to the Logger Series to be changed.
- Data obtained from the Logger Series is stored in nonvolatile memory, thus protecting it even when the battery power is low or during battery replacement.
- USB1.1 (12 Mbps) ensures the high-speed transfer of stored data to the PC.
- The 3912-20 is powered from the USB when connected to the PC, thus preventing its battery power from being exhausted. In addition, a battery indicator is available for monitoring of the battery replacement period.
- Packaged software allows personal computer to load up to 16 channels of data from logger series. Loaded data can be applied to display graphs and calculate maximum value, minimum value, etc.

1.2 Name and Functions of Parts

Front Panel



Control-button functions

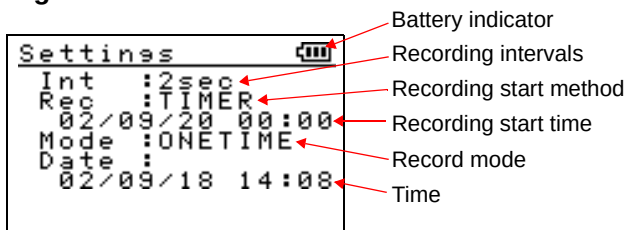
▲▼ buttons	These buttons are used to scroll through the screen when stored data is displayed. The buttons are used to change the desired settings when they are displayed.
SETTING button	This button is used to display stored setting information. The setting cursor is moved each time this button is pressed. When this button is pressed and held for approximately one second, settings will be transferred to the Logger Series.
DATA button	This button is used to display an outline of recorded data stored in the 3912-20. The displayed channels change each time this button is pressed. When this button is pressed and held for approximately one second, recorded data will be loaded from the Logger Series.

NOTE

- The LCD screen goes blank if no operations are performed for approximately 15 seconds. The performance of a switch operation or data exchange with the PC causes the LCD to light up again.
- When the ▼ button is pressed for approximately one second while stored data is displayed, the 3912-20 will be put into displayed-channel delete mode. BE CAREFUL! If the **DATA** button is pressed for approximately 1 second under this condition, the displayed channel data will be deleted.

LCD

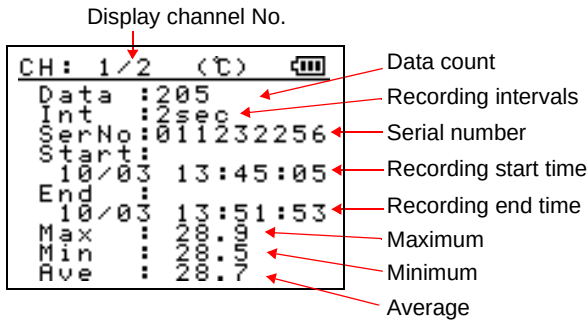
Settings screen



Battery indicator	Shows the remaining battery charge
Recording intervals	Sets the time intervals (1 sec to 1 day) between recordings
Recording start method	Selects the recording start method **OFF** : Does not start recording **ON** : Starts recording immediately **TIMER** : Starts programming The recording start time does not appear when "ON" or "OFF" is selected.
Recording start time	Sets recording start time when TIMER is selected as a recording start method.
Record mode	Selects the record mode (ONETIME/ENDLESS)
Time	Sets the 3912-20's clock

NOTE Keep in mind that one second is not selectable as a recording interval with the 3631-20 through the 3635-2X or the 3641-20, and that one day is not selectable with models other than the 3639-20.

Channel screen



Display channel No.	Shows the currently displayed channel number. The denominator represents the number of channels currently stored in the 3912-20. "**None**" appears if there is no data stored in the 3912-20 at present.
Data count	Shows the number of pieces of data
Recording intervals	Shows the time intervals between recordings
Serial number	Shows the serial number of the Logger Series that has recorded data
Recording start time	Shows the recording start time
Recording end time	Shows the recording end time
Maximum	Shows the recorded data's maximum value
Minimum	Shows the recorded data's minimum value
Average	Shows the recorded data's average value

NOTE If all recorded data is invalid, "**OVER**" will be displayed for the maximum, minimum, and average. Invalid data refers to data that causes the logger to display "**----**" - the indication displayed if a value beyond the measurement range is measured.

Measurement Preparations 2

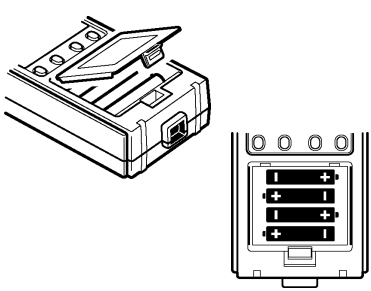
2.1 Mounting/Replacing the Battery

WARNING

- **To avoid electric shock when replacing the batteries, first disconnect the connection cords from the object to be measured.**
- **Do not mix old and new batteries, or different types of batteries. Also, be careful to observe battery polarity during installation. Otherwise, poor performance or damage from battery leakage could result.**
- **To avoid the possibility of explosion, do not short circuit, disassemble or incinerate batteries.**
- **Handle and dispose of batteries in accordance with local regulations.**

The 3912-20 shows a battery indicator on its LCD. The vertical bars on this battery indicator ( ) disappear from left to right; the battery must be replaced when the indicator is empty ( ). The 3912-20 is unable to exchange data with the Logger Series if the indicator is empty. Keep in mind, however, that the data stored in the 3912-20 remains stored even when the battery is exhausted or requires replacement. Moreover, the 3912-20's clock setting remains backed up for some 12 hours. It is therefore retained during battery replacement. Note also that when the 3912-20 is connected to the PC via a USB, the 3912-20's battery will not be exhausted, as it is powered through the USB's power-feeding feature.

Mounting/Replacing the Battery



1. Remove cover.
2. Verify polarity and install four new LR03 alkaline batteries.
3. Close cover.

2.2 Installing COMMUNICATION UTILITY

Packaged application software (COMMUNICATION UTILITY) must be installed in personal computer to use 3912-20 and logger series.

Operating environment

- Computer with Pentium 90 MHz CPU or higher
  Microsoft Windows98/Me/2000/XP
- At least 32 MB of main memory
- A display with 800 X 600 dot resolution
  At least 256 colors
- At least 4 MB of empty space on the hard disk
- USB1.1 or higher is necessary

Recommended environment

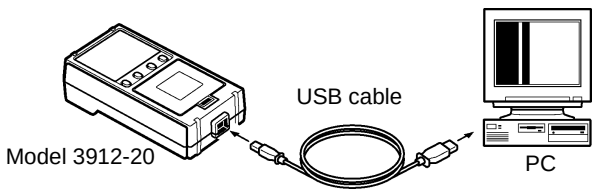
- Computer with Pentium 200 MHz CPU or higher
  Microsoft Windows98/Me/2000/XP
- 32 MB of main memory
- A display with 800 X 600 dot resolution
  At least 65536 colors
- At least 4 MB of empty space on the hard disk
- USB1.1 or higher is necessary

NOTE

- The 3912-20's maximum current consumption is 100 mA when a USB is used. The 3912-20 may not be recognized by the PC if the PC or USB hub is unable to supply more than 100 mA, or if several USB devices are connected to the USB hub and the total current consumption exceeds the amount of current that can be supplied by the hub.
- See COMMUNICATION UTILITY operation guide to install and use application software.
- The software included with the 3912-20 supports the RS-232C-compliant 3910-20 and 3911-20. Note, however, that in this case a COM board must be provided in your PC. Note also that the 3910-20 and 3911-20 run on Windows 95/NT4.0.

2.3 Installing the Device Driver

Use the supplied USB cable to connect the PC's USB port to the 3912-20.



NOTE

- To prevent malfunction, do not connect two or more 3912-20s to your PC.
- Do not disconnect or reconnect the USB cable while the 3912-20 is in operation.
- At times, the PC may indicate that it has detected a new device when a 3912-20 with a different serial number is connected. Note, however, that the PC will automatically assign the previous device driver. Therefore, it is not necessary to reinstall the device driver.

When the 3912-20 is connected to your PC for the first time, it will automatically recognize the 3912-20, and start up the [**New Hardware Wizard**].

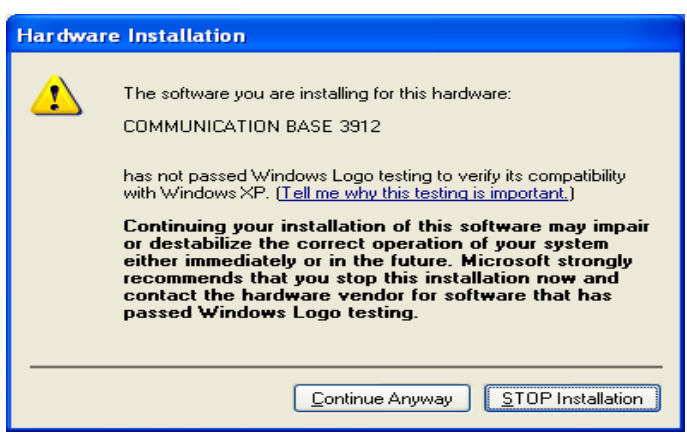
The New Hardware Wizard installs the 3912-20 device driver, although the installation procedure varies depending on the OS used.

The following describes the driver installation procedure.

When WindowsXP is used:

1. Insert the CD-R "Communication Utility" supplied with the 3912-20 into the CD-ROM drive.
2. The window shown below appears. Check [**Install the software automatically (Recommended)**], and click on [**Next**].

3. Click on [**Continue Anyway**]. Windows will start copying files. When Windows recognizes the new software as HIOKI COMMUNICATION's software, a message is displayed to the effect that the software has not been approved by Microsoft. Simply carry on with the process.



4. Click on [**Finish**].

5. When the window shown above disappears, remove the CD-R from CD-ROM drive.

When Windows2000 is used:

1. The window shown below appears. Click on [**Next**].

2. Insert the CD-R "COMMUNICATION UTILITY" supplied with the 3912-20 into the CD-ROM drive.

3. Check [**Search for a suitable driver for my device (recommended)**], and then click on [**Next**].

4. Check [**CD-ROM drives**] (uncheck other options), and click on [**Next**].

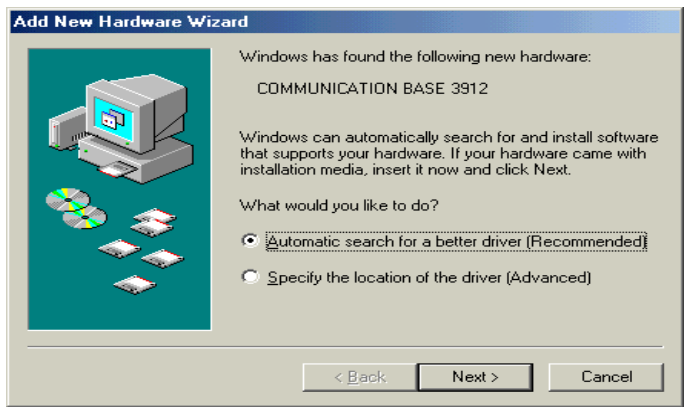
5. Click on [**Next**].

6. Click on [**Finish**].

7. When the window shown above disappears, remove the CD-R from the CD-ROM drive.

When WindowsMe is used:

1. Insert the CD-R "COMMUNICATION UTILITY" supplied with the 3912-20 into the CD-ROM drive.
2. The window shown below appears. Check [**Automatic seach for a better driver (Recommended)**], and then click on [**Next**].



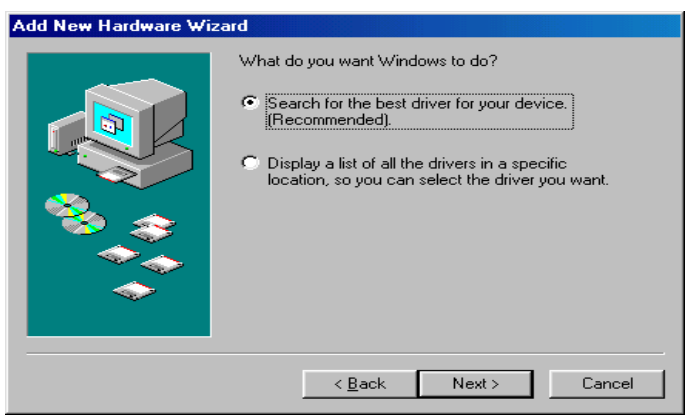
3. Click on [**Finish**].

4. When the window shown above disappears, remove the CD-R from the CD-ROM drive.

When Windows98 is used:

1. The window shown below appears. Click on [**Next**].

2. Check [**Search for the best driver for your device (Recommended)**], and click on [**Next**].



3. Insert the CD-R "COMMUNICATION UTILITY" supplied with the 3912-20 into the CD-ROM drive.

4. Check [**CD-ROM drive**] (uncheck other options), and click on [**Next**].

5. Click on [**Next**]. Windows will start copying files.

6. When the window shown below appears after a delay, click on [**Finish**].

7. When the window shown above disappears, remove the CD-R from the CD-ROM drive.

Transferring Data 3

Steps for basic measurement with logger

1. Prepare to measure. ❖See individual logger instruction manuals.
- Load batteries in logger and the 3912-20.
- Connect sensor and connection cable, etc. (page 12)
- Install application software included with the 3912-20. (page 13)
- Installing the 3912-20's device driver

↓

2. Set the 3912-20 measurement conditions. ❖ Section 3.1
Use personal computer with application software COMMUNICATION UTILITY to set measurement conditions. After completing, measurement conditions are sent to the 3912-20.

↓

3. Send setting conditions from the 3912-20 to logger. ❖ Section 3.2
Connect the 3912-20 with logger and send setting conditions.

↓

4. Measure data. ❖See individual logger instruction manuals.
To start measurement with logger, options are manual start and prescheduled start.
To end measurement, options are manual stop and one time stop.

↓

5. Retrieve measurement data from logger with the 3912-20.
Connect the 3912-20 and logger to retrieve measurement data. ❖ Section 3.3

↓

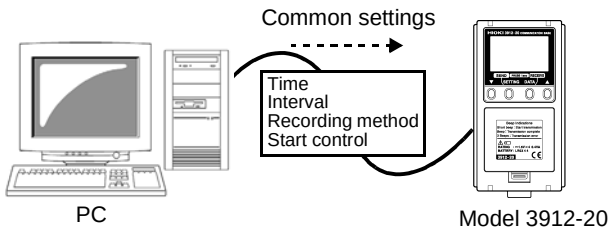
6. Check the measured data. ❖ Section 3.4
Check the measured data on the 3912-20's LCD.

↓

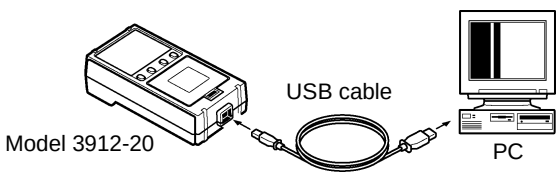
❖ Section 3.4
7. Retrieve measurement data from the 3912-20 with personal computer.
Connect personal computer and the 3912-20 to retrieve measurement data.
Analyze and save measurement data with COMMUNICATION UTILITY.

NOTE To prevent malfunction, do not connect two or more the 3912-20s to the PC.

3.1 Setting up the 3912-20



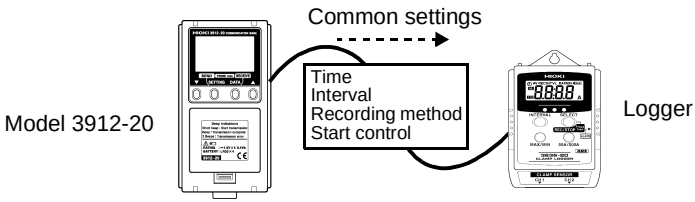
1. Connect your PC to the 3912-20 using the USB cable.



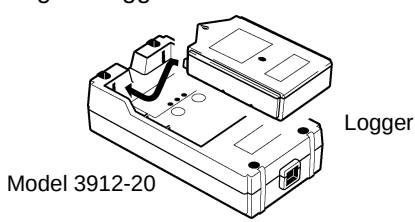
2. Start up COMMUNICATION UTILITY on personal computer.
3. First move the mouse pointer to [**Communications**] in the menu bar, and then [**Select Communication Port**]; [**USB**] and [**COM1**] through [**COM6**] will be listed in the submenu, with the current connection port checked. With the 3912-20, click on [**USB**].
4. Go to [**Communications**] on the menu bar and choose [**Set Measurement Conditions**].
5. When measurement condition setting window is open, go to [**3911, 3912**] and configure common logger series settings such as interval and recording preferences.
6. After setting, select [**Send**] to send settings to the 3912-20.

NOTE Each logger requires specific settings and measurement conditions. See Measurement condition settings in COMMUNICATION UTILITY operation guide.

3.2 Transmitting Setting Data to the Logger



1. Press logger **INTERVAL** button lightly to display LCD. (There is no need to press the button when the power-save function is OFF.)
2. When "**REC**" mark or clock mark is displayed on logger LCD, press **REC/STOP** button for more than one second to stop recording. During recording or waiting for recording start time, error occurs.
3. Press logger **INTERVAL** button to open interval setting display ("**INTVL**" displayed).
4. Connect the 3912-20 to logger series. Fit the logger to the 3912-20, aligning the logger's claws with the 3912-20's holes.



If the logger is not connected properly to the 3912-20 during communications, a communications error will be detected and indicated on the 3912-20 LCD.

NOTE

- To reset the error status, simply press one of the buttons. This will restore the logger to normal condition. Display the recording-interval setting screen ("**INTVL**"), and resume communication.
- Remember that one second is not selectable as a recording interval with the 3631-20 through the 3635-20 or the 3641-20. Note also that one day is selectable only with the 3639-20.

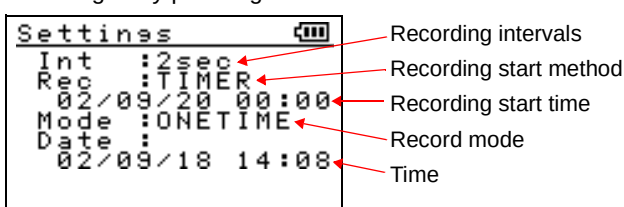
5. Press the **SETTING** button on the 3912-20 momentarily so that the LCD lights, then press and hold the same button for one second to send logger series common settings to the logger.

NOTE

- If the logger on which you record already has data on it, the previous data will be deleted. When you want to save data, transfer it to the 3912-20 or PC prior to recording new data.
- The logger can communicate with the 3912-20 even if the recording-interval setting screen is not shown on the 3912-20 LCD, except when the logger is recording or on standby to begin recording. Please note, however, that during sleep mode the logger cannot communicate with the 3912-20.

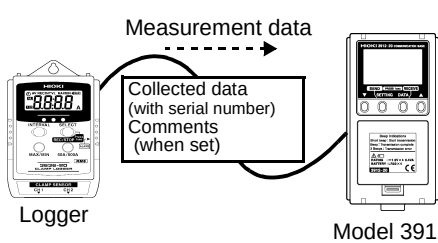
3.2.1 Displaying or Changing Settings

When the **SETTING** button is pressed, the 3912-20 will display the settings stored in it on the LCD. The cursor-indicated setting can be changed by pressing the ▲ and ▼ buttons.



The currently selected setting appears cursor-indicated (flashing). Each time the **SETTING** button is pressed, the cursor will move to the next setting.

3.3 Receiving Measured Data from the Logger

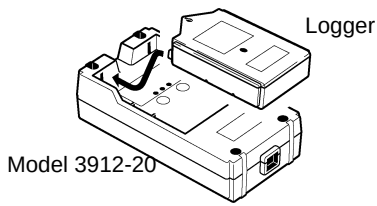


1. Press logger **INTERVAL** button lightly to display LCD. (There is no need to press the button when the power-save function is OFF.)

2. When "**REC**" mark or clock mark is displayed on logger LCD, press **REC/STOP** button for more than one second to stop recording. During recording or waiting for recording start time, error occurs.

3. Press logger **INTERVAL** button to open interval setting display ("**INTVL**" displayed).

4. Connect the 3912-20 to logger series.
Fit the logger to the 3912-20, aligning the logger's claws with the 3912-20's holes.



If the logger is not connected properly to the 3912-20 during communications, a communications error will be detected and indicated on the 3912-20 LCD.

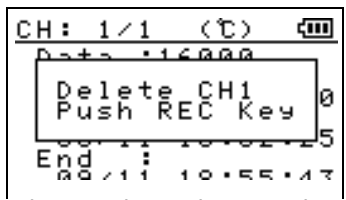
5. Press the **DATA** button on the 3912-20 momentarily so that the LCD lights, then press and hold the same button for one second to transfer measurement data from the logger to the 3912-20.
The number of channels for which the 3912-20 can receive data depends on the logger model.

Models	Maximum No. of Channels
3631-20, 3641-20	8000 data X 16 ch (8 units)
3632-20 to 3635-2X	16000 data X 16 ch (16 units)
3636-20, 3638-20 (1 ch)	32000 data X 8 ch (8 units)
3636-20, 3638-20 (2 ch)	16000 data X 16 ch (8 units)
3637-20, 3639-20, 3640-20, 3645-20	32000 data X 8 ch (8 units)

NOTE When recording data has been deleted (see 3.3.1, "Deleting Recorded Data"), the 3912-20 may be unable to receive measurement data until the maximum number of channels has been cleared.
In this case, after sending all needed recording data to the PC, execute "Erase Communications Base Memory" from the communication utility, and try receiving the data again.

3.3.1 Deleting Recorded Data

When the ▼ button is pressed and held for approximately one second while recorded data is displayed, the 3912-20 will enter displayed-channel delete mode.

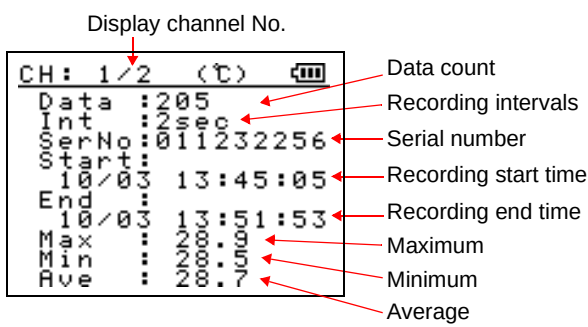


When the **DATA** button is pressed and held for approximately one second under this condition, the displayed channel will be deleted. If this mode is entered accidentally, briefly press one of the buttons.

NOTE If you load data from a logger storing two channels, such as a logger connected to the 3631-20, the 3636-20 and the 3641-20, deleting one piece of channel data will cause the other piece of data to be deleted.

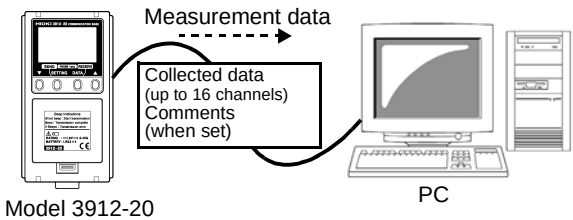
3.3.2 Displaying Recorded Data

When the **DATA** button is pressed, the 3912-20 will display the recorded data stored in it on the LCD.



The 3912-20 changes channels and displays data each time the **DATA** button is pressed. The 3912-20 displays part of the information illustrated above. To view the lower and upper parts of the information, press the ▲ and ▼ buttons, respectively, to scroll through the page.

3.4 Transmitting Measured Data to the PC



1. Connect personal computer to 3912-20.
❖2.3 Installing the Device Driver (page 13)
2. Start up COMMUNICATION UTILITY.
3. Go to [**Communications**] on the menu bar and choose [**Load Data from COMMUNICATION BASE**].
Sends measurement data from the 3912-20 to personal computer.

3.4.1 Displaying or Saving Measured Data

1. After measurement data is sent from the 3912-20 to personal computer, data is displayed in graph automatically.
2. To save data, go to [**File**] on the menu bar and choose [**Save**].
3. When window appears, select save format and save data.
Binary : Saves data in format compatible to COMMUNICATION UTILITY.
Text :Saves data in text format that can be exported to spread sheet and other application software. Cannot be exported to COMMUNICATION UTILITY.

NOTE See Save measurement data in COMMUNICATION UTILITY operation guide to save data.

Specifications 4

The specifications below apply to the 3912-20 COMMUNICATION BASE.

4.1 Functional Specification

Display	Dot-matrix LCD (128 x 64 dots)	
Communication method	The 3912-20 ↔ Logger	Infrared optical communication (synchronous serial communication, 3-wire)
	The 3912-20 ↔ PC	USB1.1 (full speed: 12 Mbps)
Transmission speed	The 3912-20 ↔ Logger	Approx. 250 pieces of data/sec
	The 3912-20 ↔ PC	Approx. 16,000 pieces of data/sec *Reference value
Cable used	USB cable (stand. supplied cable length: Approx. 1 m)	
Storage capacity	16 ch max. (16,000 pieces of data x 16 ch max.)	

4.2 Supplied PC Communication-Software Specification

Compatible OSs	Windows98/Me/2000/XP (for DOS/V)
Display	Displays graphs (16-ch graphs max., 2 cursors, enlargement/ reduction/scrolling possible), measured-data lists, number of pieces of data, average, max., min., date of recording
Printing	Prints graphs (16-ch graphs max., cursor-to-cursor selectable printing possible), measured-data lists, number of pieces of data, average, max., min., date of recording
File format	Original format (binary code), text savable (in CSV format) *CSV format: Comma-delimited text format directly loadable into Excel

4.3 General Specifications

Backup	Available * No stored-data loss during battery replacement * Clock backup by electrical double-layer capacitor - approx. 12 hrs
Battery life	Approx. 3 months (under non-operational conditions) Approx. 50 communications (16,000 x 16-ch data from Logger → The 3912-20 → PC) * No battery exhaustion during USB connection * The battery life is a reference value assuming use at 20°C(68°F), and is not intended as a guarantee.
Power supply	LR03 alkaline battery 1.5 V X4
Maximum rated power	0.4 VA
Size&weight	Approx.68.5W X 128H X 36D mm (2.7"W X "5.04H X 1.42"D) (excluding projections) Approx.180 g (6.3 oz.)
Operating environment	Indoors, altitude up to 2000 m (6562 ft.)
Operating temperature and humidity	0 to 40°C (32 to 104°F), 80%RH or less (no condensation)
Storage temperature and humidity	-10 to 50°C (14 to 122°F), 80%RH or less (no condensation)
Accessories	LR03 alkaline battery X 4 USB cable (1 m approx.) COMMUNICATION UTILITY (CD-R) Instruction manual COMMUNICATION UTILITY Operation guide
Applicable standards	EMC EN61326 Safety EN61010 Pollution Degree 2

Maintenance and Service 5

5.1 Cleaning and Storage

Cleaning

⚠CAUTION

- To clean the product, wipe it gently with a soft cloth moistened with water or mild detergent. Never use solvents such as benzene, alcohol, acetone, ether, ketones, thinners or gasoline, as they can deform and discolor the case.
- Wipe the LCD gently with a soft, dry cloth.

Storage

- Storage temperature and humidity should be kept between -10 and 50°C, at less than 80% RH.
- Do not store or use the product where it could be exposed to direct sunlight, high temperature or humidity, or condensation. Under such conditions, the product may be damaged and insulation may deteriorate so that it no longer meets specifications.
- When storing the instrument for a long time (one year or more), the specifications are no longer guaranteed. Therefore, before use, have the instrument recalibrated.

5.2 Repair and Servicing

⚠CAUTION Adjustments and repairs should be made only by technically qualified personnel.

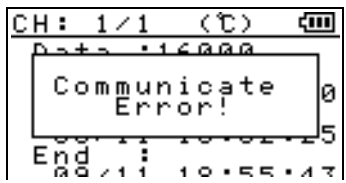
If damage is suspected, check the "Troubleshooting" section before contacting your dealer or Hioki representative.
Pack the product carefully so that it will not be damaged during shipment, and include a detailed written description of the problem. Hioki cannot be responsible for damage that occurs during shipment.

Troubleshooting

Button press does not turn LED power indicator on.	• Check and see if the batteries are properly installed and not weak.
Button press does not enable sending settings to logger nor receiving data from logger.	• Is logger properly connected to the 3912-20? When logger is not properly connected, error occurs during optical data transfer turning LED error indicator on. • Is LED power indicator blinking? When batteries are weak, LED power indicator starts blinking and communication with logger cannot be established. • Is logger in recording status? When logger is recording, data cannot be transferred. Executing data transfer during recording results in error and LED error indicator starts blinking. • Is logger set to sleep? Press logger INTERVAL button and display interval setting display. When interval setting saved in the 3912-20 is set at 1 second, interval setting cannot be sent to the 3631-20 to the 3635-2X and the 3641-20 which minimum interval is at 2 seconds. Similarly, if the recording-interval setting is one day, the setting can only be sent to the 3639-20.

Error Messages

When an error occurs in the 3912-20, an error message will appear as shown below.



Error message	Meaning	Remedy
Execution Error!	Execution error: Processing could not be executed for an unspecified reason.	When transmitting settings: The recording intervals are beyond the permissible range of the target logger. Change the recording intervals. When loading data: This error message may be displayed when the 3912-20 is not properly connected to the logger during communication. Make another attempt to load data.
Communicate Error!	Communication error: Infrared communication error	❖ Troubleshooting (page 34)
Rec Now... Error!	Recording-in-progress error: The 3912-20 is unable to communicate, as recording is in progress.	The logger is recording data. Stop recording.
No SaveSpace Error!	No-available-space error: Data could not be recorded due to space unavailability in the 3912-20.	The 3912-20's memory is full. Load data from the 3912-20 into your PC, and delete it.
Battery Low Error!	Battery-power-low error: Data could not be exchanged due to low battery power in the logger.	The logger's battery power is low. Replace the battery with a new one.

HIOKI

DECLARATION OF CONFORMITY

Manufacturer's Name:	HIOKI E.E. CORPORATION
Manufacturer's Address:	81 Koizumi, Ueda, Nagano 386-1192, Japan
Product Name:	COMMUNICATION BASE
Model Number:	3912-20

The above mentioned products conform to the following product specifications:

Safety:	EN61010-1:2001
EMC:	EN61326:1997+A1:1998+A2:2001+A3:2003 ClassB equipment Portable test and measurement eqipment

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 89/336/EEC, but is not applicable to the Low Voltage Directive.

HIOKI E.E. CORPORATION

15 September 2006

T. Yoshiike

Tatsuyoshi Yoshiike

President

3912A999-01

HIOKI 3912-20 COMMUNICATION BASE
Instruction Manual

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