HIOKI

INSTRUCTION MANUAL

3911-20

COMMUNICATION BASE

HIOKI E. E. CORPORATION

Contents

Introduction

Thank you for purchasing the HIOKI "3911-20 COMMUNICATION BASE." To obtain maximum performance from the product, please read this manual first, and keep it handy for future reference.

Inspection

When you receive the product, inspect it carefully to ensure that no damage occurred during If damage is evident, or if it fails to operate according to the specifications, contact your dealer or Hioki representative.

Accessories

Instruction Manual
LR03 alkaline battery X 4
COMMUNICATION UTILITY Operation Guide
CD-R (COMMUNICATION UTILITY)

Note on shipping

Use the original packing materials when reshipping the product, if possible.

Registered trademarks

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

The latest version of COMMUNICATION UTILITY is now available at our web site for downloading. Visit our site at: http://www.hioki.co.jp/

Safety Notes

WARNING

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.

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.

Safety Symbols

- 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.
- In the manual, the ⚠ symbol indicates particularly important information that the user should read before using the product.

⎓ Indicates DC (Direct Current).

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

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.

Notes on Use

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

⚠CAUTION

- The unit should always be operated in a range from -20℃ to 70℃ and 80% RH or less. During data transfer when connected to personal computer (using RS-232C), operating temperature range is from 0℃ to 40℃.
- If used outside the specified environmental ranges for operation (or storage), the operation of the unit cannot be guaranteed.
- 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.
- 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 use the product where it may be exposed to corrosive or combustible gases. The product may be damaged or cause an explosion.
- To avoid corrosion from battery leakage, remove the batteries from the product if it is to be stored for a long time.
- Leaving the unit connected to an activated personal computer hastens battery discharge.
  When not using the unit, disconnect it from personal computer.

Care and handling of CD-R

- To keep disc clean from finger prints and prevent label fading, carefully hold disc on the outer edge when handling.
- To prevent damage to label, do not expose disc to alcohol based solvents or water.
- When writing on label, use an oil base felt pen. Do not write with a ball point pen or other hard tipped pens to prevent scratching disc.
- To prevent disc warping, do not expose disc to direct sunlight, high temperature and high humidity.

Note on Used for COMMUNICATION UTILITY

Before using the software, please read these notes carefully.

- HIOKI E.E. Corporation is the author of COMMUNICATION UTILITY.
- Except for the purposes of processing data from the 3911-20 or controlling the 3911-20, copying, reproduction, or amendment in whole or in part of COMMUNICATION UTILITY is prohibited by law.
- For the purposes of product development, COMMUNICATION UTILITY is subject to upgrading without notice.
- To publish material referencing COMMUNICATION UTILITY, the prior consent of HIOKI is required. The trademark "HIOKI" may not be used.
- HIOKI cannot accept any responsibility whatever for the results of a customer's operation of COMMUNICATION UTILITY.

Chapter 1
Overview

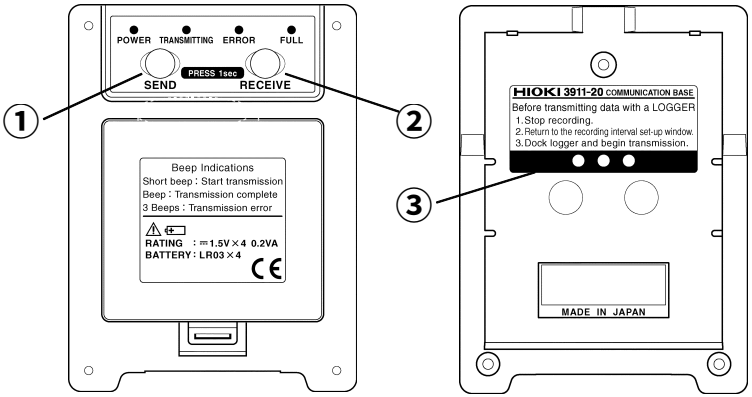
1.1 Product Overview

The 3911-20 COMMUNICATION BASE loads data from logger series and sends loaded data to personal computer. Packaged application software allows personal computer to load data from the 3911-20 and analyze loaded data.

Features

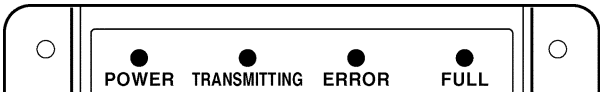
(1) Capable of collecting up to 16 channels of data when connected to logger.
(2) Capable of storing setting conditions (clock, interval, recording start time, etc.) in memory and loading settings to logger when connected to logger.
(3) LED power indicator indicates battery replacement.
(4) Packaged 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



1. SEND button	Sends the 3911-20 settings to logger series.
2. RECEIVE button	Loads recorded data in logger to the 3911-20.
3. Optical data transfer port	Enables optical data transfer to logger series.

LED condition



POWER	Turns on when button is pressed or connected to personal computer. Starts blinking to indicate weak batteries.
TRANSMITTING	Blinks during data transfer.
ERROR	Starts blinking to indicate data transfer error. Press either SEND button or RECEIVE button to correct error.
FULL	Blinks to indicate when all 16 channels (8 channels maximum for the 3636-20/ 3637-20/3638-20/3639-20/3640-20/ 3645-20) of data have been loaded to the 3911-20.

Chapter 2
Application

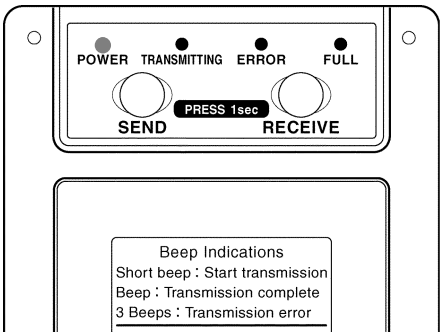
2.1 Replacing the Battery

WARNING

- **To avoid electric shock when replacing the batteries, first disconnect the 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.**
- **Handle and dispose of batteries in accordance with local regulations.**

Battery Indicator

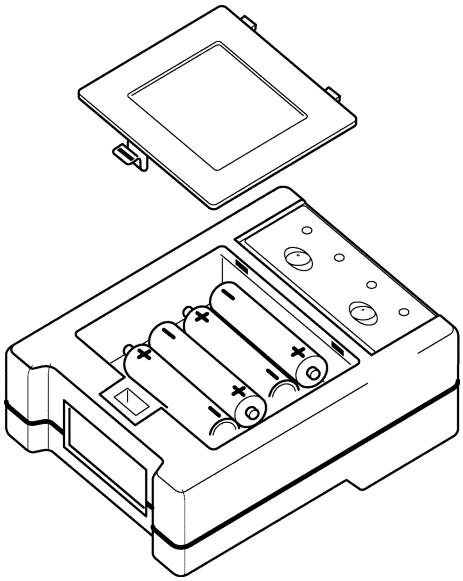
Under normal conditions LED power indicator is on. When batteries are weak, LED power indicator starts blinking. LED power indicator turns off after approximately 15 seconds with no operation.
When LED is blinking, data transfer is enabled with personal computer but not available to logger.



Note on Battery Replacement

Replace batteries when LED Power indicator is OFF.
Be sure to send data to be saved to personal computer before replacing batteries although the 3911-20 data and clock settings are saved for approximately one minute after batteries are removed.
Do not remove batteries when LED power is on or blinking to avoid losing the 3911-20 data and clock settings. LED power indicator is turned off after approximately 15 seconds with no operation.

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



2.2 Installing Application Software

Packaged application software must be installed in personal computer to use the 3911-20 and logger series.

Operating environment

- Computer with Pentium 90 MHz CPU or higher
- Microsoft Windows98/Me/2000/XP/Vista (32 bit version)
- 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
- COM port is necessary

Recommended environment

- Computer with Pentium 200 MHz CPU or higher
- Microsoft Windows2000/XP/Vista (32 bit version)
- 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
- COM port is necessary

See COMMUNICATION UTILITY operation guide to install and use application software.

2.3 Connecting and Setting PC to the 3911-20

(1) Use RS-232C Cross Cable (the 3911-20 side: D-SUB9 pin) to connect personal computer to the 3911-20.

(2) Start up COMMUNICATION UTILITY from the Windows start menu.

(3) Go to Communications on the menu bar and choose Select Communication Port to specify the same port (COM1 to COM6) as serial port on personal computer connected to the 3911-20.

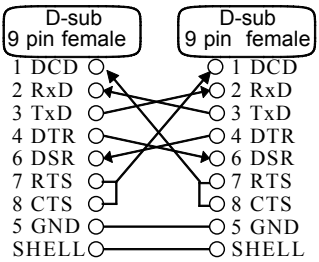
> The same communication port settings remain valid until communication is reestablished.
> Serial port is designated for communications. Locate the |○|○| mark port in the back of personal computer.
>
> 

(4) Go to Communications and select Set Time to send time of personal computer to the 3911-20. Make sure to set correct time in personal computer before sending. After installing and/or replacing batteries, make sure to connect personal computer to the 3911-20 and set current time in the 3911-20 with COMMUNICATION UTILITY before using the 3911-20.

Corresponded cable

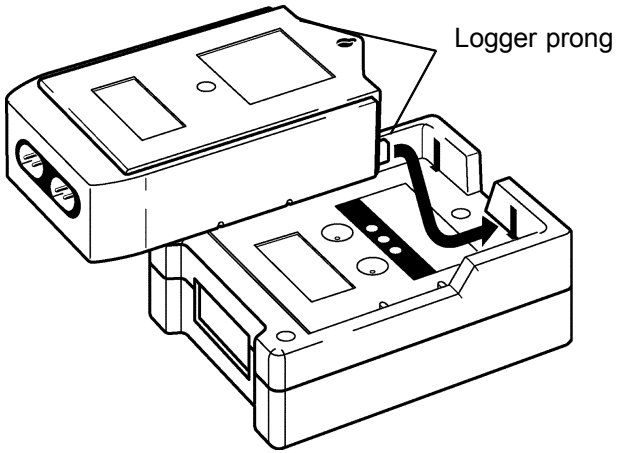
The 9637 RS-232C CABLE (1.8 m)

Optional connection cables compatible with the 3911-20 (PC/AT)
Connection: reversed



2.4 Connecting the 3911-20 with Logger

Align and insert logger prongs to the 3911-20 slots and fasten logger securely to the 3911-20.



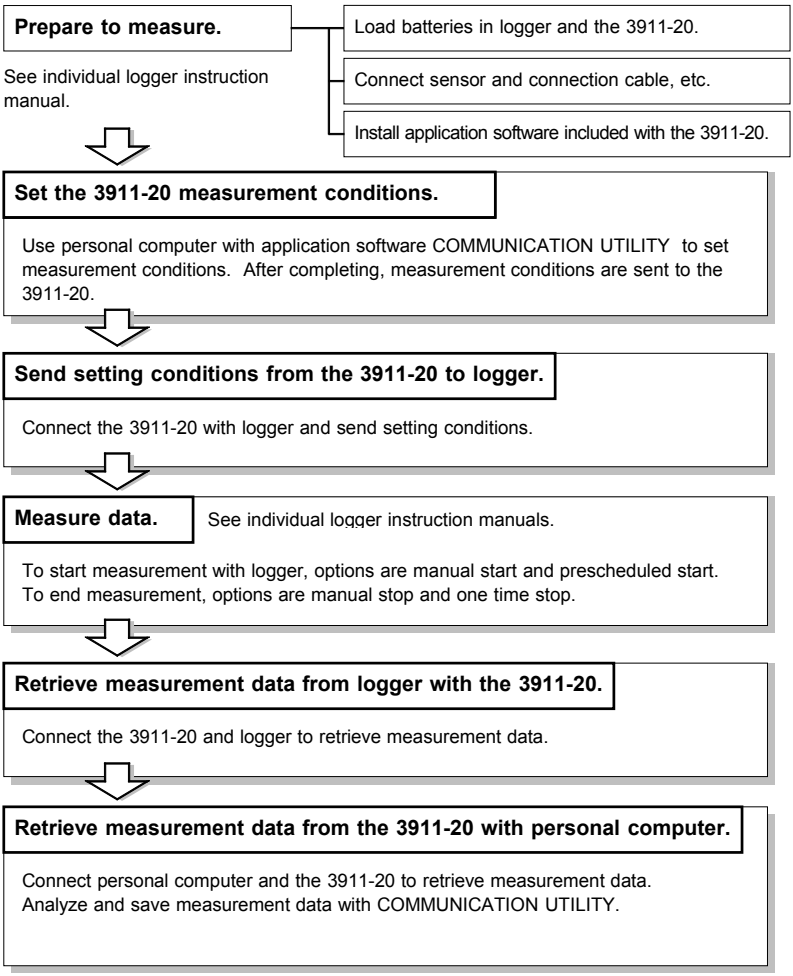
Improper connection between logger and the 3911-20 results communications failure and the 3911-20 error indicator LED appears.

When error occurs in the 3911-20, Press SEND button or RECEIVE button on the 3911-20 to reset. Logger returns to normal status. Open interval setting display again (INTVL displayed) and restart communication.

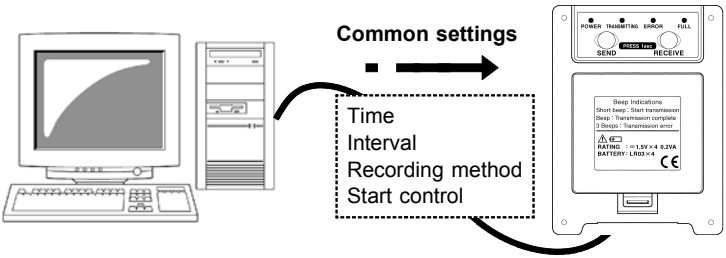
Chapter 3
Transferring Data

3.1 Measuring with Logger

Steps for basic measurement with logger



3.2 Setting the 3911-20



(1) Connect personal computer to the 3911-20. (See Section 2.3,"Connecting and Setting PC to the 3911-20")

(2) Start up COMMUNICATION UTILITY on personal computer.

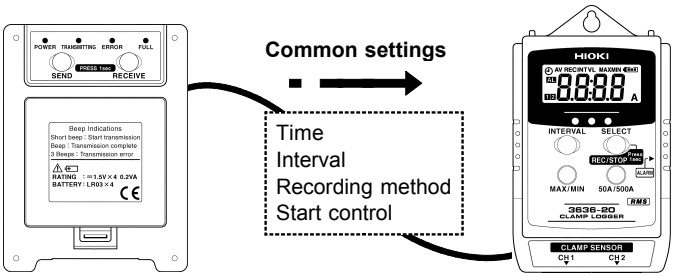
(3) Go to 'Communications' on the menu bar and choose 'Set Measurement Conditions'.

(4) When measurement condition setting window is open, go to '3911 setting item' and configure common logger series settings such as interval and recording preferences.

(5) After setting, select 'Send' to send settings to the 3911-20.

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

3.3 Sending Setting Data

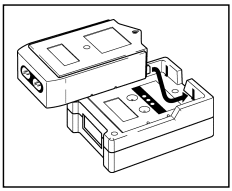


(1) Press logger INTERVAL button lightly to display LCD.

(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).

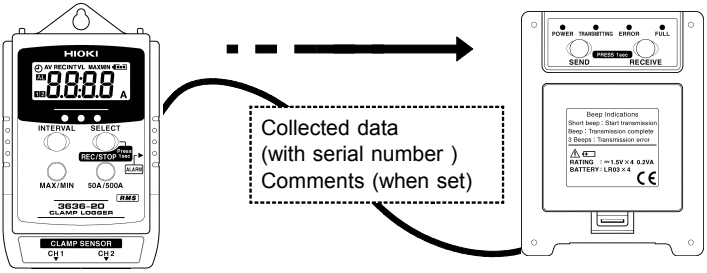
(4) Connect the 3911-20 to logger series.



(5) Press the SEND button on the 3911-20 momentarily so that the LED lights, then press and hold the same button for one second to transfer logger series common settings to the logger.

- Previously recorded logger data is erased when recording is resumed. Be sure to load data to be saved to the 3911-20 or to personal computer before recording.
- Communication with the 3911-20 is available even when interval setting display is not displayed except during recording or waiting for recording start time. However, data transfer is not possible when logger is set sleep.

3.4 Receiving Measurement Data



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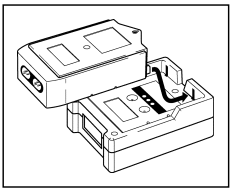


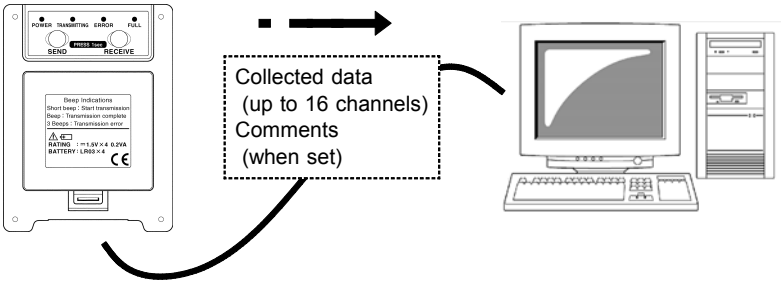
(4) Connect the 3911-20 to logger series.

(5) Press the RECEIVE button on the 3911-20 momentarily so that the LED lights, then press and hold the same button for one second to transfer measurement data from the logger to the 3911-20.

Logger type determines number of channels applicable in the 3911-20.

Model 3631-20, 3641-20	8000 data X 16 ch (8 units)
Model 3632-20 to 3635-20	16000 data X 16 ch (16 units)
Model 3636-20, 3638-20 (1 ch)	32000 data X 8 ch (8 units)
Model 3636-20, 3638-20 (2 ch)	16000 data X 16 ch (8 units)
Model 3637-20, 3639-20 Model 3640-20, 3645-20	32000 data X 8 ch (8 units)

3.5 Sending Measurement Data



(1) Connect personal computer to the 3911-20.
(See Section 2.3,"Connecting and Setting PC to the 3911-20")

(2) Start up COMMUNICATION UTILITY.

(3) Go to 'Communication' on the menu bar and choose 'Load Data from 3910,11'.
Sends measurement data from the 3911-20 to personal computer.

Saving Measurement Data

(1) After measurement data is sent from the 3911-20 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.

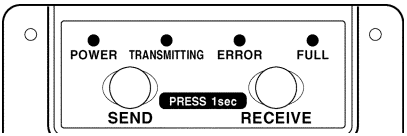
Binary: Saves data in format compatible to COMMUNICATION UTILITY.

Text : Saves data in text format that can be exported to spread sheet and other application software. Cannot be exported to COMMUNICATION UTILITY.

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

3.6 Confirming and Clearing Loaded Data

Press SEND button and Load button briefly simultaneously (within one second) .
With a beep sound, LED turns on or starts blinking.
Number of channels loaded when LED is on or blinking is displayed. See below for details.
When LED is on or blinking, press SEND button for more than one second to clear all data with a beep sound.



○ : OFF
◍ : Blinking
● : ON

○	○	○	○	No data is saved.
○	○	○	◍	Data equal to 1 channel is saved.
○	○	◍	○	Data equal to 2 channel is saved.
○	○	◍	◍	Data equal to 3 channel is saved.
○	◍	○	○	Data equal to 4 channel is saved.
○	◍	○	◍	Data equal to 5 channel is saved.
○	◍	◍	○	Data equal to 6 channel is saved.
○	◍	◍	◍	Data equal to 7 channel is saved.
◍	○	○	○	Data equal to 8 channel is saved.
◍	○	○	◍	Data equal to 9 channel is saved.
◍	○	◍	○	Data equal to 10 channel is saved.
◍	○	◍	◍	Data equal to 11 channel is saved.
◍	◍	○	○	Data equal to 12 channel is saved.
◍	◍	○	◍	Data equal to 13 channel is saved.
◍	◍	◍	○	Data equal to 14 channel is saved.
◍	◍	◍	◍	Data equal to 15 channel is saved.
●	●	●	●	Data equal to 16 channel is saved.

With Models 3636-20 and 3638-20, when measurement data from a single channel (CH1 or CH2) is received by the 3911-20, the LEDs on the 3911-20 indicate that data for two channels is present.

Chapter 4
Specifications

LED condition	POWER, TRANSMITTING, ERROR, FULL
Buzzer sound	Once (when executing key click) Three times (when error occurs)
Connection	Logger: Infrared optical data transfer (synchronous serial connection, three wire type) Personal computer: RS-232C (asynchronous serial connection, two wire type)
Transfer rate (reference value)	The 3911-20 to Logger 250 data/s The 3911-20 to PC 1000 data/s (19200 bps)
Recording capacity	16 channels (16,000 data X 16 channels) 8 channels (32,000 data X 8 channels)
Power supply	LR03 alkaline battery 1.5 V X4
Maximum rated power	0.2 VA
Battery life	About 80 days (at 20℃, when not in operation) Transferring data about 100 times (at 20 ℃, receiving and sending maximum 16000 X 16 channels of data from logger to personal computer)
Dimensions	Approx.68.5W X 92H X 36D mm (excluding projections) (2.7"WX 3.62"H X 1.42"D)
Mass	Approx.150 g (5.3 oz.) (including batteries)
Location for use	Indoors, altitude up to 2000 m (6562-ft.)
Operate temperature and humidity range	-20 to 70℃(-4 to 158℉), 80% RH or less (no condensation) 0 to 40℃(32 to 104℉) during data transfer with personal computer using RS-232C

Storage temperature and humidity range		-20 to 70℃ (-4 to 158℉), 80% RH or less (no condensation)
Water Resilience		none
Accessories		LR03 alkaline battery X 4 Instruction Manual CD-R
Option		9637 RS-232C CABLE
Standards Applying	Safety EMC	EN61010 Pollution Degree 2 EN61326

Chapter 5 Maintenance and Service

Cleaning

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.

Service

If the product seems to be malfunctioning, confirm that the batteries are not discharged 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

Problem Button press does not turn LED power indicator on.
• Check and see if the batteries are properly installed and not weak.

Problem Button press does not enable sending settings to logger nor receiving data from logger.
• Is logger properly connected to the 3911-20? 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.
• Are logger batteries weak? Communication cannot be established when logger batteries are weak. Replace with new batteries.
• Is LED datafull indicator blinking? LED datafull indicator starts blinking to indicates maximum data has been loaded to the 3911-20. Transfer data to personal computer. Although LED datafull indicator is not blinking, when the 3911-20 already has 15 channels of data attempting to load data from the 3631-20 (2 ch), the 3641-20 (2 ch), the 3636-20/3637-20/3638-20/3639-20/3640-20/3645-20 results in error and LED error indicator starts blinking.
• When interval setting saved in the 3911-20 is set at 1 second, interval setting cannot be sent to the 3631-20 to the 3635-24/-25/-26 and the 3641-20 which minimum interval is at 2 seconds.

-MEMO-

-MEMO-

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:	3911-20

The above mentioned product conforms to the following product specifications:

Safety:	EN61010-1:2001
EMC:	EN61326-1:2006 ClassB equipment Portable test and measurement equipment

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 2004/108/EC, but is not applicable to the Low Voltage Directive 2006/95/EC.

HIOKI E.E. CORPORATION

11 April 2008

Mitsuyoshi Tanaka

Director of Quality Assurance

3911A999-02

HIOKI 3911-20 COMMUNICATION BASE

Instruction Manual

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