HIOKI

2002

3630 DATA LOGGER Series

Data Logger

For Recording Temperature/Humidity, Instrumentation Readings, Load Current, Leak Current, Voltage, Pulse Counts, Illumination

Data Loggers for All Types of Measurements

INTERNET
HIOKI Website
http://www.hioki.co.jp/

The 3630 DATA LOGGER Series are compact data loggers that are not much larger than a business card and weigh a mere 70 to 130 grams. Easy to operate, these handy instruments can record up to 16,000 or 32,000 data elements, and store data in nonvolatile memory that retains information even if the batteries are dead. The DATA LOGGER Series includes models that can read temperature/humidity, instrumentation readings, voltage, current and other special types of data, and can be used in a broad range of measurements, including HACCP and ESCO applications. Data recorded in a DATA LOGGER can transferred to a personal computer through the 3911-20 COMMUNICATION BASE. Once the data is loaded into a personal computer, it can be processed, graphically displayed and managed on the PC.

For HACCP-related Temperature and Humidity Recording

●HACCP and ESCO applications ●Temperature and humidity management in transport ●Temperature and humidity management in food processing facilities ●Temperature and humidity management in warehouses or cold storage ●Energy conservation ●Temperature management in cooling processes ●Temperature and humidity management and recording for air conditioning systems

For Recording Load Current and Monitoring Leak Current

●Recording current of instrumentation signals ●Monitoring abnormal load current ●Management of plant operation status ●Monitoring leak current

TEMPERATURE/HUMIDITY LOGGER

New

3641-20
Can alternately record temperature and humidity on two channels for temperature and humidity measurement
-40 °C to 85.0 °C
0.0%rh to 100.0%rh

3631-20
Can alternately record temperature and humidity on two channels for temperature and humidity measurement
0 °C to 50.0 °C
20.0%rh to 95.0%rh

TEMPERATURE LOGGERs

3632-20
Waterproof with built-in sensor
for temperature measurement
-20.0°C to 70.0°C

3633-20
External sensor for temperature measurement
-40.0°C to 180.0°C

INSTRUMENTATION LOGGER

3634-20
For measuring typical instrumentation signals
Range: 20.00mA DC

CLAMP LOGGER

3636-20
For measuring alternating current on two channels
Range: 50.00/500.0A AC
(Clamp sensors sold separately)

For Recording Voltage

●Recording analog output from a variety of sensors ●Monitoring fluctuations in the power supply at a plant or office

For Recording Precipitation or Illumination

●Count recording for precipitation gauges, water level gauges, etc. ●Measuring illumination in a plant or office

LEAK LOGGER

3638-20
For measuring alternating current on two channels
Range: 100.0mA/1000mA AC
(Clamp sensors sold separately)

VOLTAGE LOGGERs

3635-24 to 26
For measuring DC voltage
-24: ±500.0mV DC
-25: ±5.000V DC
-26: ±50.00V DC

VOLTAGE LOGGER

3645-20
With preheat function
For measuring DC voltage
Range: ±50.00mV to ±50.00V DC

AC VOLTAGE LOGGER

3637-20
For measuring AC voltage
Range: 600.0V AC

PULSE LOGGER

3639-20
For cumulative pulse measurement for precipitation gauges, flow gauges, etc.

Illumination Logger

3640-20
For illumination measurement
Range: 2,000 lux to 200,000 lux

Space-saving, Ultra-compact Temperature Logger

●Temperature recording during transport ●Temperature management in refrigerators and freezers ●Recording temperatures in food processing plants ●Recording core temperatures when processing food
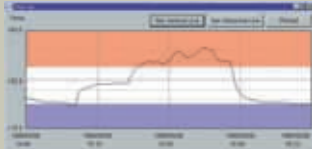
BUTTON-TYPE TEMPERATURE LOGGER and DATA READER

3650
Battery, temperature sensor
Ultra-compact button-type temperature logger with built-in memory
-40°C to 85°C

3920-01 DATA READER (with dedicated analysis software)

Example of temperature graph produced by using the dedicated analysis software

Multichannel Recording of Temperature, Humidity and Voltage

●Multipoint simultaneous temperature recording ●Correlated recording of various signals and temperature data ●Management of real-time data collection over a LAN

MULTICHANNEL DATA LOGGER/MEMORY HiCORDER

8420-01 / 8421-01
Multichannel data loggers for measuring temperature, humidity and voltage on up to 8 or 16 channels, respectively

Main Screen
Data on a maximum of 256 channels can be collected in real-time through a LAN when using the optional 9334 LOGGER COMMUNICATOR.

Store Up to 32,000 Data Elements in a Small Unit through Simple Operations

◆ Data is retained even when the batteries are dead

Because nonvolatile memory is used in the DATA LOGGER Series, data is retained even when the batteries are dead or are being replaced, ensuring that no valuable data is lost.

◆ Battery power indicator

The battery status is displayed through a four-level indicator. This can be used as a guide for identifying when the battery needs to be replaced.

◆ Large data storage capacity

A maximum of either 16,000 or 32,000 data elements can be stored in the DATA LOGGER Series. The 3631 can store 8000 elements of temperature data and 8000 elements of humidity data.

◆ Waterproof construction

The 3632 is completely waterproof*, and is ideal for applications such as temperature management in a refrigerator. The 3631 to 3635 and 3641 are water resistant.

*Not suitable for continual use under water.

◆ Identify data by inputting comments

The dedicated software that is provided with the 3911-20 allows you to set the current time, recording interval, start of recording, and the recording method, and also to input comments. By loading simple comments into the logger, the data can then be easily identifed after they are transferred to the PC.

◆ Power saving function

The power saving function can be enabled or disabled through the dedicated software that is provided with the 3911-20. When enabled, the power saving function turns off the display while the unit records data. Pressing a key causes the current measurement to be temporarily displayed on the screen. When the power saving function is disabled, the current measurement is always visible on the display.

## Use a PC to Analyze and Process Large Volumes of Recorded Data

3911-20 COMMUNICATION BASE

Infrared communication: Approximately 500 data elements/second (The DATA LOGGER and the 3911-20 perform communications simultaneously. The photo is shown for illustrative purposes only.)

DATA LOGGER → 3911-20

3911-20 → PC
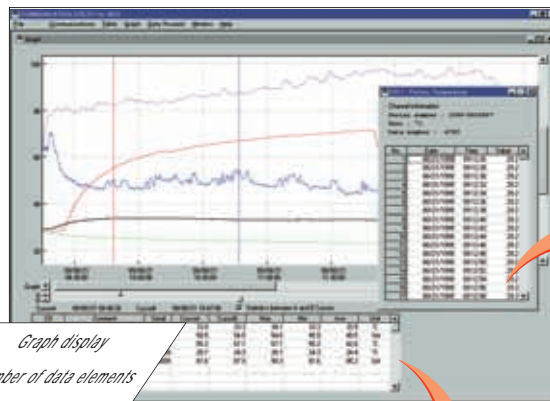RS-232C CABLE
Approximately 1000 data elements/second
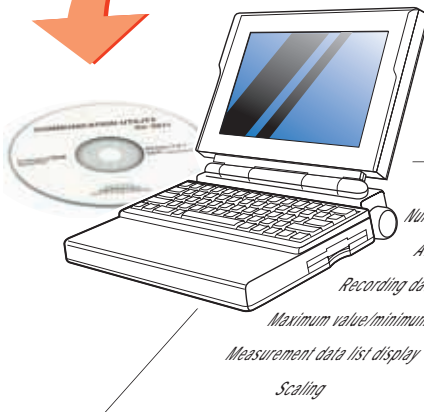
The 3911-20 COMMUNICATION BASE is used to transfer data from a Data Logger to a PC. The 3911-20 can collect data on up to 16 channels. Data from multiple DATA LOGGERs that are installed in fixed positions can be collected by the 3911-20 and then transferred to a PC for analysis and processing.

● Recording capacity: 32,000 data elements × 8 channels (3631-20 to 3635-20: 16,000 data elements × 16 channels maximum) ● Communication method: DATA LOGGER ↔ 3911-20: Infrared communications/3911-20 ↔ PC: RS-232C ● Power supply: LR03(AAA) alkaline dry cell battery × 4 ● Dimensions and mass: 69 (W) × 92 (H) × 36 (D) mm; 150g ● Accessories: PC communication software, Windows 95/98/NT4.0 (for DOS/V, PC98); Functions: Graph display, data list, printing (data and graphs), data processing, file saving (proprietary format or text format)

9637 RS-232C CABLE (9-pin to 9-pin crossed cable/1.8m)
9638 RS-232C CABLE (9-pin to 25-pin crossed cable/1.8m)

* Select cable appropriate for your PC.

Graph display
Number of data elements
Average value
Recording date and time
Maximum value/minimum value
Measurement data list display
Scaling

Data collected by the 3911-20 can be processed in a variety of ways on a PC.

Measurement data list

For Recording Temperature and Humidity

New

Wide measurment range with long life (about 5 years) humidity sensor 9680

WATER PROOF

Model	NEW 3641-20 HUMIDITY LOGGER	3631-20 HUMIDITY LOGGER	3632-20 TEMPERATURE LOGGER	3633-20 TEMPERATURE LOGGER
Features	Temperature and humidity logger that can record temperature and humidity on two channels using the 9680 TEMPERATURE AND HUMIDITY SENSOR provided.	Temperature and humidity logger that can record temperature and humidity on two channels using the 9630 TEMPERATURE AND HUMIDITY SENSOR provided.	Waterproof temperature logger that supports only a built-in temperature sensor.	Temperature logger that supports a built-in temperature sensor or an external temperature sensor (sold separately)
Measured items	Temperature and humidity (2 channels)	Temperature and humidity (2 channels)	Temperature (1 channel)	Temperature (1 channel)
Measurement range (resolution: 0.1˚C, 0.1%rh)	Temperature: -20.0˚C to 70˚C (using the built-in temperature sensor) -40.0˚C to 180.0˚C (using an external temperature sensor) -40.0˚C to 85.0˚C (using the 9680 Temp. and Humidity Sensor) Humidity: 0.0% to 100.0%rh (using the 9680 Temp. and Humidity Sensor)	Temperature: -20.0˚C to 70˚C (using the built-in temperature sensor) -40.0˚C to 180.0˚C (using an external temperature sensor) 0.0˚C to 50.0˚C (using the 9630 Temp. and Humidity Sensor) Humidity: 20.0% to 95.0%rh (using the 9630 Temp. and Humidity Sensor)	-20.0˚C to 70.0˚C (when using the built-in temperature sensor) Only the built-in sensor may be hused. Waterproof type Conforms with IP67 (Models other than the 3632-20 conform with IP54.)	-20.0˚C to 70.0˚C (when using the built-in temperature sensor) -40.0˚C to 180.0˚C (when using an external temperature sensor)
Accuracy	Temperature: ±0.5˚C (0.0 to 35.0˚C) ±1.0˚C (-40.0 to -0.1˚C / 35.1 to 70.0˚C) ±2.0˚C (70.1 to 120.0˚C) ±5.0˚C (120.1 to 180.0˚C) Humidity: See the Accuracy table 1 at bottom right .	Temperature: ±0.5˚C (0.0 to 35.0˚C) ±1.0˚C (-40.0 to -0.1˚C / 35.1 to 70.0˚C) ±2.0˚C (70.1 to 120.0˚C) ±5.0˚C (120.1 to 180.0˚C) Humidity: See the Accuracy table 2 at bottom right .	±0.5˚C (0.0 to 35.0˚C) ±1.0˚C (-40.0 to -0.1˚C / 35.1 to 70.0˚C)	±0.5˚C (0.0 to 35.0˚C) ±1.0˚C (-40.0 to -0.1˚C / 35.1 to 70.0˚C) ±2.0˚C (70.1 to 120.0˚C) ±5.0˚C (120.1 to 180.0˚C)
Accessories	9680 TEMPERATURE AND HUMIDITY SENSOR × 1	9630 TEMPERATURE AND HUMIDITY SENSOR × 1	—	—

■ Common specifications

●Response time: Built-in sensor: Approximately 25 minutes; External temperature sensor: Depends on response time of sensor (Refer to chart below.)
●Storage capacity: 16,000 data elements (3631-20, 3641-20: 8,000 data elements × 2 channels) ●Recording start: Manual start or timer start ●Recording interval: 2/5/10/15/20/30 seconds, 1/2/5/10/15/20/30/60 minutes ●Interface: Infrared communications (Communication between unit and the 3911-20, or between the 3911-20 and a PC are handled through an RS-232C connection cable.) ●Settings that can be made through the main unit: Recording interval, recording start/stop ●Settings that can be made through the 3911-20: Current time, recording interval, recording start time, recording method, comment ●Power supply: LR03(AAA) alkaline dry cell battery × 2; Maximum rated power: 0.1VA; Battery life: Approximately 2 years (3631-20: Approximately 1 year) when recording interval is set at one minute ●Dimensions and mass: Approximately 57 (W) × 74 (H) × 19.5 (D) mm; 70g ●Operating environment: Indoors, at an altitude of 2,000m or less, -20.0˚C to 70.0˚C, 80%rh or less (with no condensation)

Temperature and Humidity Sensors

9630/9630-01/9630-02 HUMIDITY SENSOR
Temperature range: 0.0˚C to 50.0˚C
Humidity range: 20.0 to 95.0%rh
Response time:
Temperature: Approximately 100 seconds
Humidity: Approximately 10 minutes
Sensor dimensions:
60 (W) x 25 (H) x 12 (D) mm
Cord length:
9630: Approximately 1 m (provided)
9630-01: Approx. 5 m
9630-02: Approx. 10 m

9631-01/9631-11/9631-21 TEMPERATURE SENSOR
(Molded plastic type)
Temperature range: -40.0˚C to 180.0˚C
Response time:
Approximately 100 seconds
Sensor dimensions:
5 mm diameter x 28 mm
Cord length:
9631-01: Approx. 1 m
9631-11: Approx. 5 m
9631-21: Approx. 10 m

9631-02 TEMPERATURE SENSOR
(Needle type)
Temperature range: -40.0˚C to 120.0˚C
Response time:
Approximately 20 seconds
Dimensions of metallic portion:
1.3 mm diameter x 25 mm
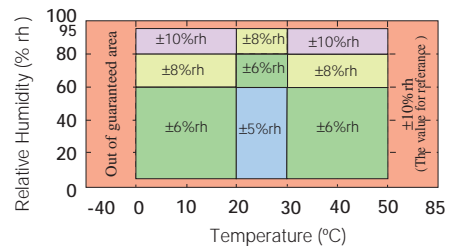Cord length: Approx. 1 m

9631-03 TEMPERATURE SENSOR
(Sheathed type)
Temperature range: -40.0˚C to 120.0˚C
Response time:
Approximately 90 seconds
Dimensions of metallic portion:
4 mm diameter x 180 mm
Cord length: Approx. 1 m

Outer diameter: 7 mm
Inner diameter: 3.2mm

9631-04/9631-14/9631-24 TEMPERATURE SENSOR
(Lug type)
Temperature range: -30.0˚C to 180.0˚C
Response time: Approximately 45 seconds
Dimensions of metallic portion: 16.5 mm
Cord length:
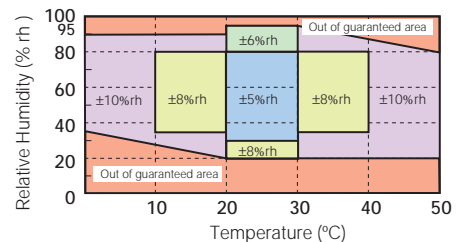9631-04: Approx. 1 m
9631-14: Approx. 5 m
9631-24: Approx. 10 m

9631-05 TEMPERATURE SENSOR
(Molded plastic type)
Temperature range: -40.0˚C to 180.0˚C
Response time:
Approximately 100 seconds
Sensor dimensions:
5 mm diameter x 28 mm
Cord length: Approx. 30 mm

9680/9680-01/9680-02 HUMIDITY SENSOR
Temperature range: -40.0˚C to 85.0˚C
Humidity range: 0.0 to 100.0%rh
Response time:
Temperature: Approximately 100 seconds
Humidity: Approximately 300 seconds
Sensor dimensions:
30 (W) x 13(H) x 8 (D) mm
Cord length:
9680: Approximately 1 m (provided)
9680-01: Approx. 5 m
9680-02: Approx. 10 m

● **9680 HUMIDITY SENSOR ACCURACY TABLE 1**

	±10%rh	±8%rh	±10%rh	
±8%rh	±6%rh	±8%rh	
±6%rh	±5%rh	±6%rh	

Relative Humidity (% rh) vs Temperature (°C)
Out of guaranteed area
±10%rh (The value for reference)

● **9630 HUMIDITY SENSOR ACCURACY TABLE 2**

±10%rh	±8%rh	±6%rh	±8%rh	±10%rh
		±5%rh		
		±8%rh		
Out of guaranteed area
Relative Humidity (% rh) vs Temperature (°C)

NOTE : The response times indicated are reference values for the time until 90% of the value is indicated for a given change in temperature or humidity.

The temperature sensors are all thermisters, and the humidity sensor 9630 has a polymer structure (resistor type), 9680 has a polymer structure (capacity type).

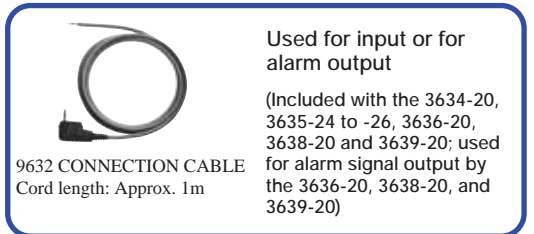The 9630 can not use with 3641, the 9680 can not use with 3631.

For Recording Instrumentation Readings, Load Current, and Leak Current
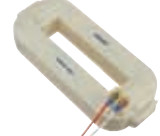
Model	3634-20 INSTRUMENTATION LOGGER	3636-20 CLAMP LOGGER	3638-20 LEAK LOGGER
Features	Can measure signals up to 20 mA DC, ideal for measuring instrumentation signals.	Can record load current through two channels using clamp sensors (sold separately)	Can record leak current through two channels using clamp sensors (sold separately)
Measured items	For instrumentation/0 to 20 mA DC (1 channel)	Load current (2 channels)	Leak current (2 channels)
Compatible clamps	–	9650 / 9651	9657 / 9658 / 9659
Measuring range	DC 0.00 to 20.00 mA	0.00 to 500.0 Arms AC (sine wave) (Two ranges: 50.00 A/500.0 A)	0.0 to 1000 mArms AC (sine wave) (Two ranges: 100.0 mA/1000 mA)
Accuracy Range in which accuracy is guaranteed: 23 ± 5ºC	±0.8% rdg. ±5 dgt. Temperature coefficient: 0.08%/ºC	±1% rdg. ±5 dgt. (main unit only) ±2.5% rdg. ±8 dgt. (main unit + sensor)* (*When range is 50 A/500 A if using the 9650; when range is 500 A if using the 9651)	±1% rdg. ±5 dgt. (main unit only) ±2% rdg. ±10 dgt. (main unit + sensor)*1 ±2% rdg. ±6 dgt. (main unit + sensor)*2 (*1 When range is 100 mA; *2 When range is 1000 mA)
Rectification method	–	True RMS	With 50/60Hz filter/True RMS
Storage capacity	16,000 data elements	32,000 data elements (1 channel), 16,000 data elements (2 channels)	
Recording mode	–	Instantaneous value recording/Average value recording (average value during the recording interval)	Maximum value recording/Average value recording (average value during the recording interval)
Continuous operating time (when power saving function is enabled)	Approximately two years with a recording interval of one minute	Approximately one year with a recording interval of one minute (when using instantaneous value recording) Approximately one month (when using average value recording)	Approximately one month with a recording interval of one second Approximately ten days with a recording interval of 0.2 seconds
Dimensions and mass	Approx. 57 (W) × 74 (H) × 19.5 (D) mm; 70g	Approx. 57.5 (W) × 86.5 (H) × 30.0 (D) mm; 130g	

■ Common specifications

●Alarm output (3636-20 and 3638-20 only): ON when measured value is outside range set by specified upper and lower limit values (open collector output) ●Recording start: Manual start or timer start ●Recording interval: 1*/2/5/10/15/20/30 seconds, 1/2/5/10/15/20/30/60 minutes (*1 second setting is supported only by the 3636-20 and the 3638-20) ●Interface: Infrared communications (Communication between unit and the 3911-20, or between the 3911-20 and a PC are handled through an RS-232C connection cable.) ●Settings that can be made through the main unit: Recording interval, recording start/stop ●Settings that can be made through the 3911-20: Current time, recording interval, recording start time, recording method, comment ●Power supply: LR03(AAA) alkaline dry cell battery × 2 (× 4 for the 3636-20 and the 3638-20); Maximum rated power: 0.1VA ●Operating environment: Indoors, at an altitude of 2000m or less, -20.0ºC to 70.0ºC (0ºC to 50ºC for the 3636-20 and the 3638-20), 80%rh or less (with no condensation) ●Accessories: 9632 CONNECTION CABLE × 1

9632 CONNECTION CABLE
Cord length: Approx. 1m

Used for input or for alarm output

(Included with the 3634-20, 3635-24 to -26, 3636-20, 3638-20 and 3639-20; used for alarm signal output by the 3636-20, 3638-20, and 3639-20)

■ CLAMP ON SENSOR Specifications (Cord length: Approximately 3m)

	For load current measurement (for 3636-20)		For leak current measurement (for 3638-20)		
Model	9650	9651	9657	9658	9659
Rated primary current/output	AC 100 A/AC 100 mA	AC 500 A/AC 500 mA	AC 1 A/AC 25 mV		
Accuracy	±1.5% rdg. ±0.03% f.s. (f.s. is rated primary current value)		±1.0%rdg.±12μV	±3.5%rdg.±12μV	±1.0%rdg.±12μV
Lag current	–	–	5 mA (when 100 A AC is input)	1 mA (when 10 A AC is input)	30 mA (when 500 A AC is input)
External magnetic field effect	–	–	Equivalent to 5 mA at 400A AC/m; 7.5 mA max.		
Frequency characteristics	40 Hz to 1 kHz (within ±8%)	40 Hz to 1 kHz (within ±3%)	45 to 66 Hz		
Maximum allowable input	130 A continuous (45 to 66 Hz)	600 A continuous (45 to 66 Hz)	60 A continuous (45 to 66 Hz)	10 A continuous (45 to 66 Hz)	100 A continuous (45 to 66 Hz)
Maximum circuit voltage	300 Vrms AC (insulated conductor)	600 Vrms AC (insulated conductor)	300 Vrms AC (insulated conductor)	150 Vrms AC (insulated conductor)	460 Vrms AC (insulated conductor)
Measurable conductor diameter	Up to φ15 mm	Up to φ46 mm	Up to φ40 mm	Up to 12 × 30 mm	Up to 30 × 150 mm
Dimensions and mass	Approx. 46(W) × 135(H) × 21(D) mm 200g	Approx. 77 (W) × 151 (H) × 42 (D) mm 340 g	Approx. 74 (W) × 145 (H) × 42 (D) mm 340 g	Approx. 65 (W) × 52 (H) × 18 (D) mm 50 g	Approx. 358 (W) × 108 (H) × 48 (D) mm 2.5 kg

For Recording DC and AC Voltage

Model	3635-24 to -26 VOLTAGE LOGGER	3645-20 VOLTAGE LOGGER	3637-20 AC VOLTAGE LOGGER
Features	Can measure current DC voltage, ideal for measuring instrumentation signals or for measuring analog signals from sensors or other devices	Voltage logger that permits control of pre-heating time and is compatible with various sensors that have different response times	AC voltage measurement logger that can measure up to 600V AC
Measured items	DC voltage	DC voltage + preheat function	AC voltage
Measuring range	DC ±500.0 mV (-24)/±5.000 V (-25)/ ±50.00 V(-26)	DC ±50.00 mV/±500.0 mV/ ±5.000V/±50.00V	0.0 to 600 Vrms AC (sine wave)
Accuracy Range in which accuracy is guaranteed: 23 ± 5ºC	±0.8% rdg. ±5 dgt. Temperature coefficient: 0.08%/ºC	±0.5% rdg. ±5 dgt. Temperature coefficient: (0.02%rdg.±1.5dgt.)/ºC	±1%rdg.±5dgt.
Rectification method	–	True RMS	True RMS
Storage capacity	16,000 data elements	32,000 data elements	
Recording mode	–	Instantaneous value recording/Average value recording (average value during the recording interval)	
Preheat function	–	Open drain output (30 V, 20 mA max.) Time: 0.5/1/2/5/10/30/60 seconds	–
Continuous operating time (when power saving function is enabled)	Approximately two years with a recording interval of one minute	Approximately one year with a recording interval of one minute (when using instantaneous value recording) Approximately one month (when using average value recording)	
Dimensions and mass	Approx. 57 (W) × 74 (H) × 19.5 (D) mm; 70g	Approx. 57.5 (W) × 86.5 (H) × 30.0 (D) mm; 70g	Approx. 57.5 (W) × 86.5 (H) × 30.0 (D) mm; 130g
Accessories	9632 CONNECTION CABLE × 1	9632/9639 CONNECTION CABLE × 1	9639 CONNECTION CABLE × 1

■ Common specifications

●Recording start: Manual start or timer start ●Recording interval: 1*/2/5/10/15/20/30 seconds, 1/2/5/10/15/20/30/60 minutes (* 1 second setting is not supported by the 3635-24 to -26) ●Interface: Infrared communications (Communication between unit and the 3911-20, or between the 3911-20 and a PC are handled through an RS-232C connection cable.) ●Settings that can be made through the main unit: Recording interval, recording start/stop ●Settings that can be made through the 3911-20: Current time, recording interval, recording start time, recording method, comment ●Power supply: LR03(AAA) alkaline dry cell battery × 2 (× 4 for the 3645-20 and the 3637-20); Maximum rated power: 0.1VA ●Operating environment: Indoors, at an altitude of 2000m or less, -20.0ºC to 70.0ºC (0ºC to 50ºC for the 3645-20 and the 3637-20), 80%rh or less (with no condensation)

■ Voltage logger applications

● Recording output from sensors that require preheating (3645-20)

The 3645-20 can be used to record output from various sensors that require preheating, such as water level sensors and soil sensors. When the 3645-20 is used in combination with the 3631-20 TEMPERATURE AND HUMIDITY LOGGER, the 3639-20 PULSE LOGGER or the 3640-20 ILLUMINATION LOGGER, the DATA LOGGER Series simplifies the construction of databases that can be useful for agricultural civil engineering.

● One unit can record a variety of output

These units can record a broad range of output voltages, from several millivolts to 50V, even for high sensitivity, low output sensors, such as light sensors.

● For recording analog output from a variety of test equipment

These units can record output from test equipment that outputs analog signals, such as clamp ammeters, revolution counters, thermometers, and light meters.

● For voltage input

9639 CONNECTION CORD
Cord length: Approx. 3 m
(provided with 3637-20 and 3645-20)

● For analog signal input (for the 3635-24 to -26)

φ2.5mm

φ3.5mm

9632 CONNECTION CABLE
Cord length: Approx. 1 m

9633 CONNECTION CABLE
Cord length: Approx. 1 m

9634 CONNECTION CABLE
Cord length: Approx. 1 m

For Recording Precipitation and Illumination

3639-20 PULSE LOGGER

For measuring precipitation

For collecting power data
(Compatible with power meters that have a pulse output connector)

Pulse logger for counting pulses output from precipitation gauges, flow meters, etc.

● Compact and light at only 130g, the 3639-20 is easy to install, and yet can record as much as 32,000 data elements.
● Prevents count errors through a noise filter
● Data that is collected can be put into a time bar graph or a cumulative bar graph using the dedicated software

■ Basic Specifications

Input/accuracy	: Pulse input: 1 channel (Maximum display: 9999)/ within ±1 dgt.
	• No voltage contact input (Count is incremented when short between terminals changes to open)
	• Voltage inputHigh: +1.5V to +45V; Low: 0.0V to +0.2V(Count is incremented when voltage level goes high)
Recording interval (precision)	: 1/2/5/10/15/20/30 seconds, 1/2/5/10/15/20/30/60 minutes, 1 unit (±100 ppm)
Recording capacity	: 32,000 data elements
Interface	: Infrared communications; data is collected in the 3911-20 COMMUNICATION BASE (sold separately) and is then transferred to a PC through an RS-232C interface.
Alarm output	: Status is output each recording interval when a set value is exceeded (open drain output).
Power supply	: LR03(AAA) alkaline dry cell battery × 4
Battery life	: Approximately three months with 10 minute measurement interval (display off, no voltage contact measurement)
Dimensions and mass	: Approx. 58 (W) × 87 (H) × 30 (D) mm; 130g (not waterproof)
Accessories	: 9629 CONNECTION CABLE × 1; 9632 CONNECTION CABLE × 1

9629 CONNECTION CABLE
(5 m/for measurement)

* The 3911-20 (sold separately) and a connecting cable are both required in order to analyze measurement data on a PC. See page 2 for details.

3640-20 LUX LOGGER

To quickly log fluctuations in illumination and then process the data on a PC

● Broad measurement range from 2000 to 200,000 lux
● Light and compact illumination logger with a large memory
● In addition to measuring illumination on site, can also download collected data to a PC for processing
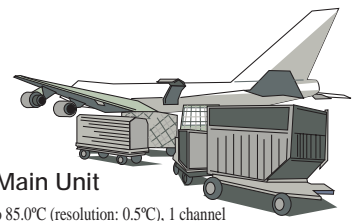
■ Basic Specifications

Optical element	: Silicon photo diode
Measuring range	: 2000/20,000/200,000 lx (manual range)
Display	: LCD 2.00/20.00/200.0 (measured value is display value × 1000)
Accuracy	: ±4% rdg. ±5 dgt.
Recording interval	: 1/2/5/10/15/20/30 seconds, 1/2/5/10/15/20/30/60 minutes
Recording capacity	: 32,000 data elements
Interface	: Infrared communications; data is collected in the 3911-20 COMMUNICATION BASE (sold separately) and is then transferred to a PC through an RS-232C interface.
3911-20 settings	: Current time, recording interval, start time, recording method, comment, range
Power supply	: LR03(AAA) alkaline dry cell battery × 4
Battery life	: Approximately one year with 1 minute recording interval (in power saving mode)
Dimensions and mass	: Approx. 58 (W) × 87 (H) × 30 (D) mm; 130g
Accessories	: 9662 LUX SENSOR (cord length: 2m) × 1

* The 3911-20 (sold separately) and a connecting cable are both required in order to analyze measurement data on a PC. See page 2 for details.

For Recording Temperature During Transport

Compact Logger That Revolutionizes Temperature Control Systems

3650 TEMPERATURE LOGGER

Actual size

17.35 mm

Button-type logger with built-in temperature sensor

Special mount provided

Compact button-sized temperature logger

● Sensor, memory and power supply are all encased in a unit with a diameter of a mere 17.35mm
● Can easily control temperatures in HACCP processes over a range from -40ºC to 85.0ºC
● Can record data for up to 2048 temperature readings
● Temperature data can be collected in a special reader (sold separately), and can then be used to create graphs or for other processing on a PC
● Easy to check for temperature abnormalities in distribution chain for foodstuffs by using a checker (sold separately) at the receiving destination
● Can be easily installed in a special (antibacterial) mount

■ Basic Specifications of Main Unit

Measuring range	: Temperature -40.0ºC to 85.0ºC (resolution: 0.5ºC), 1 channel
Recording capacity	: 2,048 data elements (approximately 1 year with the maximum recording interval of 4 hours and 15 minutes)
Recording interval	: 1 minute to 255 minutes
Recorded information	: Temperature history, temperature distribution, temperature warning history, simple notes:
Interface	: Data collected in DATA READER is transferred to a PC through an RS-232C interface
Power supply	: Internal battery; can measure temperature at least 500,000 times
Battery life	: Approximately 4 years of continuous use with a measuring interval of 5 minutes (Varies according to measuring conditions; battery cannot be replaced.)
Dimensions and mass	: Approximately 17.35 mm in diameter × 5.89 mm thick; 3.3g
Accessories	: Special antibacterial holder

■ Basic Specifications of the 3920-01 DATA READER

Communication method	: RS-232C (D-sub 9 pin male)
Analysis software	: For PC running Windows 95/98
Functions	: Measurement start setting/analysis, 16-channel graph display, etc.
Data storage format	: Proprietary format, or CSV format
Accessories	: Dedicated analysis software (one CD-R)

3920-01

■ Basic Specifications of the 3921 DATA CHECKER

Functions	: Place on the 3650; if the stored temperature values are normal, a green LED lights; if any of the stored temperature values are abnormal, a red LED lights. * The threshold levels for abnormal values must be set in the main unit beforehand.
Power supply	: Button-type lithium battery (CR-2032) × 1
Dimensions and mass	: Approx. 40 (W) × 58 (H) × 19 (D) mm; 43 g

* The 3920-01 (sold separately) is required in order to analyze measurement data on a PC.

3921

For Multichannel Recording of Temperature, Humidity, and Voltage

Multi-channel Logger with PC Network Connectivity, Fully Isolated Channels

8420-01, 8421-01 MEMORY HiLOGGER

LAN

RS-232C

* The optional 8992 PRINTER or the 8993 DIGITAL I/O UNIT can be mounted in this unit.

LAN-compatible Data Logger That Displays Recorded Trends

● Two types with 8 channels (8420-01) or 16 channels (8421-01) of insulated analog inputs
● 5.7-inch color STN LCD and LAN functions (10BASE-T connector) included as standard features
● Simultaneous input of voltage, thermocouple, temperature resistor and humidity sensor; count is maintained of pulse input; fluctuations in RPMs can also be measured simultaneously
● With optional 8993 unit, 16 digital input channels and 16 alarm output channels are also available
● Through a LAN connection, a maximum of 256 channels of real-time data can be collected in a PC (using the optional 9334 unit)

■ Basic Specifications

Number of channels	: 8420; 8 analog channels (scanning method) + 4 pulse channels (inputs and outputs and each channel are insulated from each other) 8421; 16 analog channels (scanning method) + 4 pulse channels (inputs and outputs and each channel are insulated from each other)
Input	: [Voltage] 100 mV to 100 V f.s. 5 ranges (maximum resolution 5 µV, 100 mV f.s. range) [Thermocouple] K, E, J, T, N, R, S, B, W (WRe5-25) (100ºC to 2000ºC f.s. 3 ranges, maximum resolution 0.01ºC, 100ºC f.s. range) [Temperature resistor] Pt100, JPt100 (100ºC to 2000ºC f.s. 3 ranges, maximum resolution 0.01ºC, 100ºC f.s. range) [Humidity] 100%rh f.s. 1 range (0.1% resolution) [Pulse] Cumulative counter, RPM fluctuation counter; DC to 5 kHz
Recording interval	: 100 ms to 1 h (16 ranges)
Memory capacity	: 4M word DRAM
External storage	: Flash ATA card (up to 528MB, saving in real time possible)
Interface	: for LAN cable connection (10BASE-T connector), RS-232C
Recording section	: Uses 8992 PRINTER UNIT (sold separately) to record on thermal paper roll
Power supply	: 9447 BATTERY PACK (provides approximately 5 hours of continuous operation), or 9418-10 AC ADAPTER
Dimensions and mass	: Approx. 324 (W) × 170 (H) × 52 (D) mm; 1.4 kg (when 8992 and 8993 are not mounted)
Accessories	: 9418-10 AC ADAPTER (12 V - 2.5 A) × 1

8992 PRINTER UNIT
Removable
Permits printing on site

8993 DIGITAL I/O UNIT
Removable

OPTIONS
9234 RECORDING PAPER (18m, 10rolls/1set)
9334 LOGGER COMMUNICATOR
9447 BATTERY PACK (Ni-MH)
9648 CARRYING CASE
9653 HUMIDITY SENSOR

HIOKI

HIOKI E. E. CORPORATION