User's Manual

DXAdvanced

Daqstation DX364

(Installation and Wiring of the DX364 and Functions and Operations Different from the DX1000)

YOKOGAWA
Yokogawa Electric Corporation

IM 04L70B01-01E
10th Edition

Contents

Thank you for purchasing the Daqstation DX364 (DX). This manual covers the basic functions, installation, and connection procedure of the DX. It also describes the operating procedures, functions, and specifications that are different from the DX1000. To ensure correct use, please read this manual thoroughly before beginning operation. The DX comes with the following manuals.

Paper Manual

Manual Title	Manual No.
DX364 User's Manual	IM 04L70B01-01E
This manual. Read this manual before reading the DX1000/DX1000N/DX2000 electronic manuals.	

DAQSTANDARD

Download the DAQSTANDARD (Application software) from the following URL.

URL: https://www.yokogawa.com/ns/dxadv/download/

Electroric Manuals

You can download these manuals from the following web page.
https://y-link.yokogawa.com/YL000/

Manual Title	Manual No.
DX1000/DX1000N User's manual	IM 04L41B01-01E
Explains how to use the useful functions of the DX1000/DX1000N. The display orientation and the operating procedures are different from the DX364. Some function cannot be used on the DX364. For the communication functions, see IM 04L41B01-17E.	
DX1000/DX1000N Operation Guide	IM 04L41B01-02E
Explains the basic operations. The operating procedures differ from the DX364.	
DX1000/DX1000N/DX2000 Communication Interface User's Manual	IM 04L41B01-17E
Describes how to use the communication functions using the Ethernet interface. Some functions are different on the DX364.	
DAQSTANDARD Viewer User's Manual	IM 04L41B01-63EN
DAQSTANDARD Hardware Configurator User's Manual	IM 04L41B01-64EN
DAQSTANDARD DX-P Hardware Configurator User's Manual	IM 04L41B01-65EN
Installing DAQSTANDARD	IM 04L41B01-66EN

DAQSTANDARD Manuals

Manual Title	Manual No.
DAQSTANDARD Viewer User's Manual	IM 04L41B01-63EN
DAQSTANDARD Hardware Configurator User's Manual	IM 04L41B01-64EN
DAQSTANDARD DX-P Hardware Configurator User's Manual	IM 04L41B01-65EN
Installing DAQSTANDARD	IM 04L41B01-66EN

* The last one characters of the manual number and general specification number indicate the language in which the manual is written.

About the DX364 User's Manual

The DX364 operation differs from the DX1000. Please familiarize yourself with the setup operations explained in this manual before reading the electronic manuals.

Notes

- The contents of this manual are subject to change without prior notice as a result of continuing improvements to the instrument's performance and functions.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest YOKOGAWA dealer.
- Copying or reproducing all or any part of the contents of this manual without YOKOGAWA's permission is strictly prohibited.
- This manual is part of this product. Keep this manual on safe place for future reference.
- The TCP/IP software of this product and the document concerning the TCP/IP software have been developed/created by YOKOGAWA based on the BSD Networking Software, Release 1 that has been licensed from the Regents of the University of California.

About the Usage of Open Source Software

MD5

The following products uses MD5 source code.
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DX364

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The Authorised Representative for this product in the EEA and the importer for this product into the EU/EEA market via Yokogawa sale channel is:

Yokogawa Europe B.V.
Euroweg 2, 3825 HD Amersfoort,The Netherlands

Importer for This Product into the Great Britain Market

In relation to UKCA marking, the importer for this product into the Great Britain market via the YOKOGAWA sales channel is :

Yokogawa United Kingdom Limited
Stuart Road Manor Park Runcorn, WA7 1TR, United Kingdom

QR Code

The product has a QR Code pasted for efficient plant maintenance work and asset information management.
It enables confirming the specifications of purchased products and user's manuals.
For more details, please refer to the following URL.
https://www.yokogawa.com/qr-code

QR Code is a registered trademark of DENSO WAVE INCORPORATED.

10th Edition: August 2023 (YK)

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Revisions

1st Edition: February 2007 2nd Edition: March 2010
3rd Edition: December 2014 4th Edition: March 2016
5th Edition: June 2018 6th Edition: May 2019
7th Edition: June 2020 8th Edition: April 2021
9th Edition: October 2022 10th Edition: August 2023

DX364 Versions and Functions

Edition	Product	Addition and Change
1	Version 2.01	-
2	Version 2.06	・Color Band Display have been changed or added. ・Larger Scale Font ・Changes to the Scales on the Bar Graph Display
3	Release number 2 (Style number H: 2) Version 2.06	・LCD is changed to the high-brightness product.
4	Same above	・Compliant with Safety Standards (IEC/EN/UL/CSA 61010-1 3rd edition)
5	Same above	・Additions of "Waste Electrical and Electronic Equipment (WEEE), Directive"
6	Same above	Delete the CF card adapter. Changed the battery assembly part number.
7	Release number 2 (Style number H: 3) Version 2.1x	Changed the style (H).
8	Same above	Compliant with CE RoHS directive (10-Substances)
9	Same above	Correspodence to UKCA

Safety Precautions

- The DX conforms to IEC safety class I (provided with terminal for protective grounding), Overvoltage Category II or I[*1], Pollution Degree 2, Measurement Category II (CAT II)[*2], and EN61326-1 (EMC standard) class A (use in a commercial, industrial, or business environment).
  The influence rate (judgment condition A) in the immunity test environment is within ±10 % of the range or ±10 mV (50V range only, ±20 % of the range).

*1 Overvoltage Category II: Applide to standard power supply (100-240 VAC), I: Applide to /P1 option (24 VDC/AC)

*2 Measurement Category II (CAT II)
Applies to measuring circuits connected to low voltage installation, and electrical instruments supplied with power from fixed equipment such as electric switchboards.

- The general safety precautions described here must be observed during all phases of operation. If the DX is used in a manner not described in this manual, the protection provided by the DX may be impaired. Yokogawa Electric Corporation assumes no liability for the customer's failure to comply with these requirements.
- The DX is designed for indoor use.

- **About This Manual**
  - Please pass this manual to the end user. We also ask you to store this manual in a safe place.
  - Read this manual thoroughly and have a clear understanding of the product before operation.
  - This manual explains the functions of the product. It does not guarantee that the product will suit a particular purpose of the user.
- **Precautions Related to the Protection, Safety, and Alteration of the Product**
  The following safety symbols are used on the product and in this manual.

"Handle with care." To avoid injury and damage to the instrument, the operator must refer to the explanation in the manual.

Protective ground terminal

Alternating current

Direct current

  - For the protection and safe use of the product and the system in which this product is incorporated, be sure to follow the instructions and precautions on safety that are stated in this manual whenever you handle the product. Take special note that if you handle the product in a manner that violates these instructions, the protection functionality of the product may be damaged or impaired. In such cases, YOKOGAWA does not guarantee the quality, performance, function, and safety of product.
  - When installing protection and/or safety circuits such as lightning protection devices and equipment for the product and control system or designing or installing separate protection and/or safety circuits for fool-proof design and fail-safe design of the processes and lines that use the product and the control system, the user should implement these using additional devices and equipment.
  - If you are replacing parts or consumable items of the product, make sure to use parts specified by YOKOGAWA.

- This product is not designed or manufactured to be used in critical applications that directly affect or threaten human lives. Such applications include nuclear power equipment, devices using radioactivity, railway facilities, aviation equipment, air navigation facilities, aviation facilities, and medical equipment. If so used, it is the user's responsibility to include in the system additional equipment and devices that ensure personnel safety.
- Do not modify this product.

WARNING

- **Use the Correct Power Supply**
  Ensure that the source voltage matches the voltage of the power supply before turning ON the power.
- **Connect the Protective Grounding Terminal**
  Make sure to connect the protective grounding to prevent electric shock before turning ON the power.
- **Do Not Impair the Protective Grounding**
  Never cut off the internal or external protective grounding wire or disconnect the wiring of the protective grounding terminal. Doing so invalidates the protective functions of the instrument and poses a potential shock hazard.
- **Do Not Operate with Defective Protective Grounding**
  Do not operate the instrument if the protective grounding might be defective. Also, make sure to check them before operation.
- **Do Not Operate in an Explosive Atmosphere**
  Do not operate the instrument in the presence of flammable liquids or vapors. Operation in such an environment constitutes a safety hazard.
  Prolonged use in a highly dense corrosive gas (H_2S, SOx, etc.) will cause a malfunction.
- **Do Not Remove Covers**
  The cover should be removed by YOKOGAWA's qualified personnel only. Opening the cover is dangerous, because some areas inside the instrument have high voltages.
- **Ground the Instrument before Making External Connections**
  Connect the protective grounding before connecting to the item under measurement or control unit.
- **Damage to the Protection**
  Operating the instrument in a manner not described in this manual may damage the instrument's protection.
- **Pull Out the Inner Instrument Correctly**
  Pull out the inner instrument correctly according the instructions given in "Pulling Out the Inner Instrument" in this manual.

- **Exemption from Responsibility**
  - YOKOGAWA makes no warranties regarding the product except those stated in the WARRANTY that is provided separately.
  - YOKOGAWA assumes no liability to any party for any loss or damage, direct or indirect, caused by the user or any unpredictable defect of the product.
- **Handling Precautions of the Software**
  - YOKOGAWA makes no warranties regarding the software accompanying this product except those stated in the WARRANTY that is provided separately.
  - Use the software on a single PC.
  - You must purchase another copy of the software, if you are to use the software on another PC.
  - Copying the software for any purposes other than backup is strictly prohibited.
  - Please store the original media containing the software in a safe place.
  - Reverse engineering, such as decompiling of the software, is strictly prohibited.
  - No portion of the software supplied by YOKOGAWA may be transferred, exchanged, or sublet or leased for use by any third party without prior permission by YOKOGAWA.

Handling Precautions of the DX

- Use care when cleaning the DX, especially any plastic parts. When cleaning, wipe using a dry soft cloth. Do not use chemicals such as benzene or thinner, since these may cause discoloring and deformation.
- Keep electrically charged objects away from the signal terminals. If you do, the DX may malfunction.
- Do not apply volatile chemicals to the display, panel keys, etc. Do not allow rubber and vinyl products to remain in contact with the DX for long periods of time. If you do, the DX may malfunction.
- If there are any symptoms of trouble such as strange odors or smoke coming from the DX, immediately turn OFF the power switch and the power supply source. Then, contact your nearest YOKOGAWA dealer.

Handling Precautions of the External Storage Medium (CF Card)

- Use caution in the handling of the external storage medium as it is a delicate product.
- Write operation to storage media may fail under high-temperature or low-temperature environments. If you are using the DX in a low-temperature environment (around 10°C or less), use the DX after the warm-up time (at least 30 minutes) has elapsed. If you are using the DX under a high-temperature environment (around 40°C or more), it is recommended that the external storage medium be inserted into the drive when saving the data and be removed after the data storage operation is finished.
- Remove the storage medium from the drive when starting/stopping the power supply.
- Touching the compact flash section when static electricity is built up on the human body can lead to erroneous operation.
- For the general handling precautions of the external storage medium, see the instruction manual that came with the external storage medium.

CAUTION

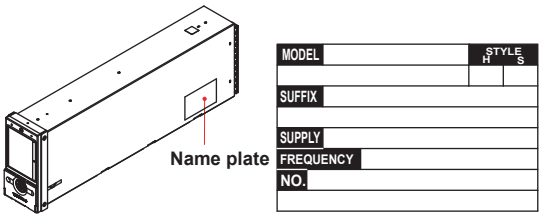
- Do not eject the storage medium while the memory access indicator is illuminated. This can damage the data.
- Do not access the storage medium in a place with vibrations or shock. The storage medium or drive may malfunction.

Checking the Contents of the Package

Unpack the box and check the contents before operating the instrument. If some of the contents are not correct or missing or if there is physical damage, contact the dealer from which you purchased them.

DX

A name plate is located on the side panel of the DX. Check that the model name and suffix code given on the name plate match those on your order.



NO. (Instrument Number)

When contacting the dealer from which you purchased the instrument, please give them the instrument number.

MODEL and SUFFIX Code

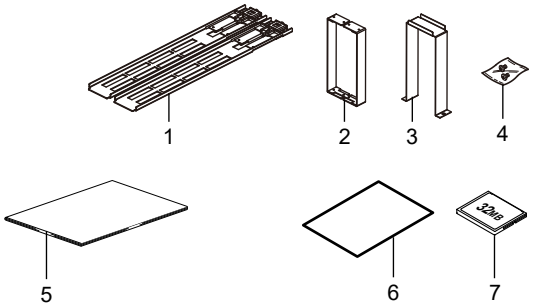
Model	Suffix Code			Optional Code	Notes
DX364					Daqstation DX364 4ch, 125 ms (25 ms)*2
Internal memory	-1				Standard memory (80 MB)
External storage medium		-4			CF card (with medium)
Language			-2		English deg F and DST
Options				/A1	Alarm output 2 points*1
				/F1	FAIL/Status output*1
				/M1	Mathematical functions (including the report function)
				/P1	24 VDC/AC power supply
				/R1	Remote control
				/CC1	Calibration correction function

*1 /A1 and /F1 cannot be specified together.

*2 Scan interval. Values in parentheses are for the fast sampling mode.

Standard Accessories

The standard accessories below are supplied with the instrument. Check that all contents are present and undamaged.



No.	Name	Part No./ Model	Qty.	Notes
1	Mounting brackets	B8708FA	2	For panel mounting
2	Support mounting brackets	B8708FH	1	For panel mounting
3	Tail hold bracket	B8708FN	1	For panel mounting
4	Tail hold bracket attachment screw	Y9408LH	2	M4
5	DX364 User's Manual	IM 04L70B01-01E	1	A4 size (this manual)
6	License sheet	-	1	For DAQSTANDARD
7	CF card	B8706NQ	1	128 MB (the size and model may change)

Optional Accessories (Sold Separately)

The following optional accessories are available for purchase separately. If you make an order, make sure that all contents are present and undamaged. For information about ordering accessories, contact the dealer from which you purchased the DX.

No.	Name	Model	Minimum Q'ty	Notes
1	CF card	772093	1	512 MB
		772094	1	1 GB
		772095	1	2 GB
2	Shunt resistor (for screw terminal)	415920	1	250 Ω ± 0.1%
		415921	1	100 Ω ± 0.1%
		415922	1	10 Ω ± 0.1%
3	User's Manuals for the DX1000/ DX1000N/DX2000	B8706ZZ	1	CD. Contains the PDF file of the DX1000/ DX1000N/ DX2000 user's manual.

Version and Suffix Codes Described in This Manual

- The contents in this manual correspond to DX with version 2.01 and DAQSTANDARD software revision R8.2x.
- This manual covers information regarding DXs that have a suffix code for language "-2" (English).
- For details on how to set the language, see section 2.6, "Changing the Language" in the DX1000/DX1000N User's Manual (IM 04L41B01-01E). The selectable languages on the DX are English and Japanese.

Conventions Used in This Manual

Unit

K: Denotes 1024. Example: 768 KB (file size)

k: Denotes 1000.

The following markings are used in this manual.

Improper handling or use can lead to injury to the user or damage to the instrument. This symbol appears on the instrument to indicate that the user must refer to the user's manual for special instructions. The same symbol appears in the corresponding place in the user's manual to identify those instructions. In the manual, the symbol is used in conjunction with the word "WARNING" or "CAUTION."

WARNING

Calls attention to actions or conditions that could cause serious or fatal injury to the user, and precautions that can be taken to prevent such occurrences.

CAUTION

Calls attentions to actions or conditions that could cause light injury to the user or damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.

Note

Calls attention to information that is important for proper operation of the instrument.

▶

Indicates after this mark reference to related procedure or explanation.

Bold characters

Indicates character strings that appear on the screen and the operation keys.

关于产品污染防止管理 /Control of Pollution Caused by the Product

前言

根据中华人民共和国电子信息产品污染防止管理对本产品进行了说明。

This is an explanation for the product based on “Control of pollution caused by Electronic Information Products” in the People’s Republic of China.

产品中有毒有害物质或元素的名称及含量

部件名称		有毒有害物质或元素					
		铅 Pb	汞 Hg	镉 Cd	六价铬 Cr(VI)	多溴联苯 PBB	多溴二苯醚 PBDE
LCD 显示器		×	×	×	○	○	○
印刷电路板配件		×	×	×	○	○	○
内部接线的材料		×	×	×	○	○	○
存储媒体驱动		×	×	×	○	○	○
箱体和底座	塑料	×	×	×	○	○	○
	金属	×	×	×	○	○	○
电源		×	×	×	○	○	○
操作键		×	×	×	○	○	○
附件 / 选配件	端子用螺钉	×	×	×	○	○	○
	安装支架	×	×	×	○	○	○
	安装辅助支架	×	×	×	○	○	○
	固定支架	×	×	×	○	○	○
	固定支架用螺钉	×	×	×	○	○	○
	CF 卡 772091, 772092, 772093, 772094, 772095	×	×	×	○	○	○
	CF 卡适配器 772090	×	×	×	○	○	○
	分流电阻 415920, 415921, 415922	×	×	×	○	○	○

○：表示该部件的所有均质材料中的有毒有害物质或元素的含量均低于 GB/T 26572 标准所规定的限量要求。

×：表示该部件中至少有一种均质材料中的有毒有害物质或元素的含量超过 GB/T 26572 标准所规定的限量要求。

本产品的部分部件包含 RoHS 指令中的限用物质，但是其使用方法不受该指令限制。

Some parts of this product include the restricted substances of RoHS Directive, but their applications are under the exemption of the directive.

环保使用期限

该标志为环境保护使用期限，根据 SJ/T11364，适用于在中国（ 台湾、香港、澳门除外 ）销售的电子电气产品。只要您遵守该产品相关的安全及使用注意事项，在自制造日起算的年限内，则不会因产品中有害物质泄漏或突发变异，而造成对环境的污染或对人体及财产产生恶劣影响

注）该年数为“环保使用期限”，并非产品的质量保证期。零件更换的推荐周期，请参照使用说明书

Waste Electrical and Electronic Equipment (WEEE)

This is an explanation of how to dispose of this product based on Waste Electrical and Electronic Equipment (WEEE), Directive and Regulation. Only valid in the EEA for EU WEEE Directive and in the UK for UK WEEE Regulation.

- Marking
  This product complies with the WEEE marking requirement. This marking indicates that you must not discard this electrical/electronic product in domestic household waste. When disposing of products in the EEA or UK, contact your local Yokogawa office in the EEA or UK respectively.

How to Replace and/or Dispose the Batteries

This is an explanation about the EU Battery Directive/Regulation and UK Battery Regulation. Only valid in the EEA for EU Battery Directive/Regulation and in the UK for UK Batter Regulation.
Batteries are included in this product. You cannot replace batteries by yourself. When you need to replace and/or dispose batteries, contact your local Yokogawa office in the EEA or UK respectively.

Battery type: Lithium battery

Notice: The symbol (see above) means they shall be sorted out and collected as ordained in the EU Battery Directive/Regulation and UK Battery Regulation.

Supported Standards

This product supports the standards in the following table.

Item		Specifications
CSA		CAN/CSA-C22.2 No. 61010-1, CAN/CSA-C22.2 No. 61010-2-030, Overvoltage Category II or I[*1], Pollution Degree 2[*2], and Measurement Category II[*3]
UL		UL 61010-1, UL 61010-2-030 (CSA NRTL/C), Overvoltage Category II or I[*1], Pollution Degree 2[*2], and Measurement Category II[*3]
CE, UKCA		
	EMC directive	EN 61326-1 Class A, Table 2 (For use in industrial locations) compliant EN 61000-3-2 compliant EN IEC 61000-3-2 compliant EN 61000-3-3 compliant EN 55011 Class A, Group 1 compliant
	Low voltage directive	EN 61010-1, EN IEC 61010-2-030 compliant, Overvoltage Category II or I[*1], Pollution Degree 2[*2], and Measurement Category II[*3]
	EU RoHS directive	EN IEC 63000 compliant
WEEE directive		Compliant
EMC regulatory arrangement in Australia and New Zealand (RCM)		
		EN 55011 Class A, Group 1 compliant
KC marking		KS C9811, KS C9610-6-2 compliant

*1 Overvoltage Category: Describes a number which defines a transient overvoltage condition. limplies the regulation for impulse withstand voltage. Applies to electrical equipment which is supplied from the fixed installation like a distribution board.
II: Applied to standard power supply(100-240V AC)
I: Applied to /P1 option (24V DC/AC)

*2 Pollution Degree 2: Describes the degree to which a solid, liquid, or gas which deteriorates dielectric strength or surface resistivity is adhering. “2” applies to normal indoor atmosphere. Normally, only non-conductive pollution occurs.

*3 Measurement Category II: Applies to measuring circuits connected to low voltage installation, and electrical instruments supplied with power from fixed equipment such as electric switchboards.

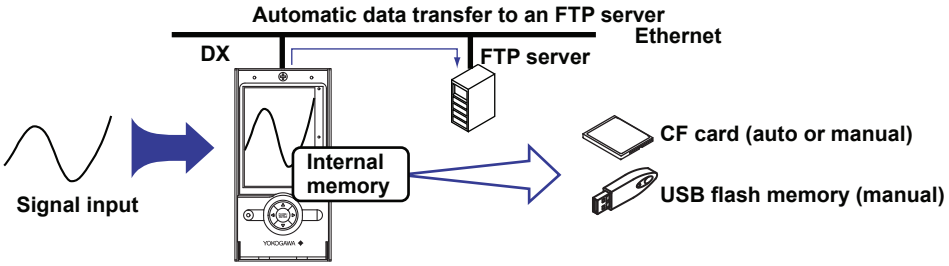
Introduction to Functions

Measured Items

You can connect DC voltage, thermocouple, and ON/OFF signals and make various measurements such as temperature and flow rate. The DX samples the input signals at the scan interval to obtain the measured values. The fastest scan interval is 25 ms.
Up to four alarm conditions can be set for each measurement channel.

Data Storage Function

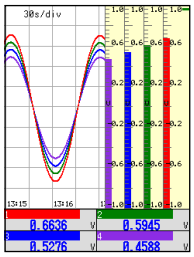
There are two methods of recording measured data. One is to record the measured data continuously, and the other is to record only when certain events occur such as alarms. The measured data is recorded to the internal memory at a specified interval. The data in the internal memory can be stored to an external storage medium automatically or manually. By connecting to a network via the Ethernet interface, the measured data can also be automatically transferred to an FTP server on a network.



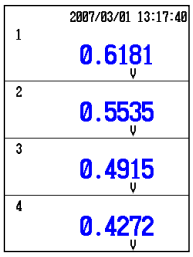
Display Function

You can assign measurement channels to display groups and display the trend, numeric value, and bar graph.

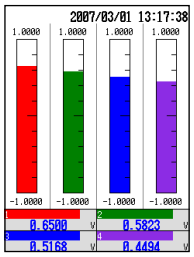
Trend display



Numeric (digital) display



Bar graph display



Other Functions

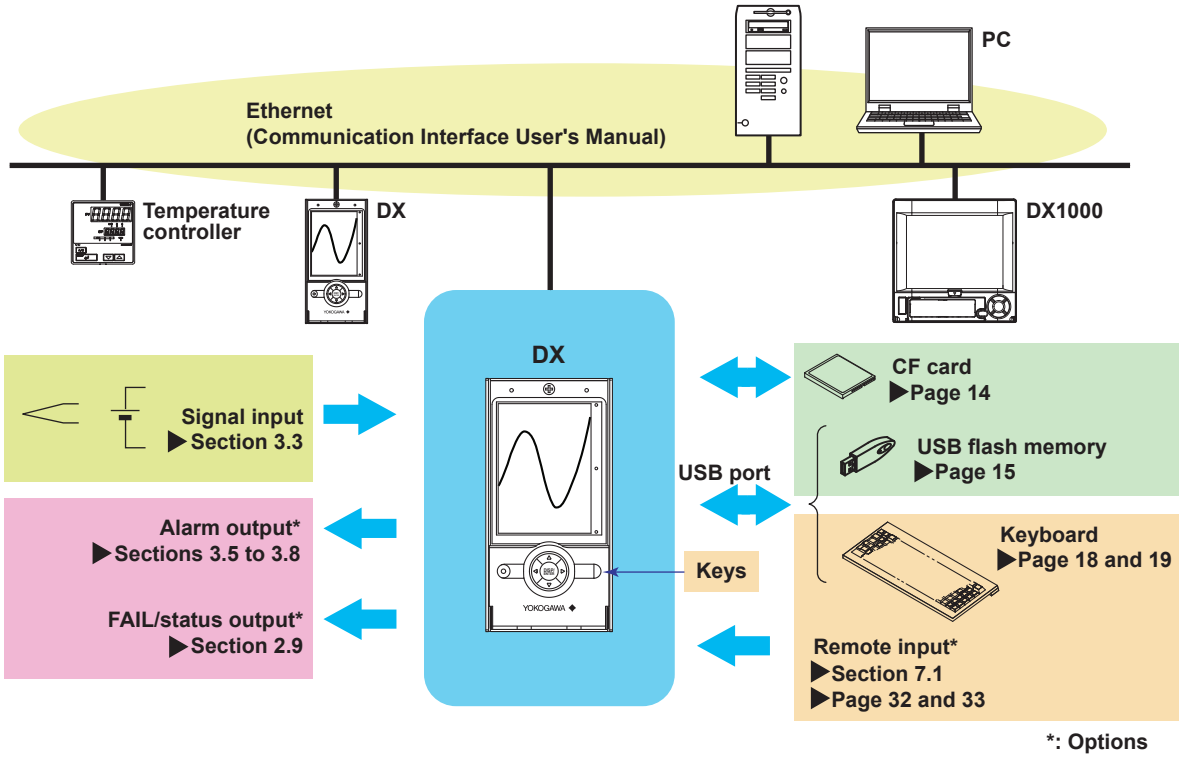
Computation Function (option)	Various types of computation can be performed by assigning equations to computation channels.
FAIL/status output function (option)	Outputs an alarm when the DX fails. The function also monitors the DX status such as the remaining amount of internal memory and outputs alarms.
Remote control function (option)	A specified action is executed when a remote input signal is applied to the terminal on the rear panel.
Security function	Enables only registered users can operate the DX. The function can also be used to prohibit key operation.
Communication function	The Ethernet interface can be used to monitor the DX using a Web browser and transmit e-mail when an event occurs such as an alarm. In addition, data of devices on the network can be loaded and displayed using the Modbus protocol.

DAQSTANDARD

The software program, DAQSTANDARD, can be used to display the measured data, convert the measured data format, and create DX setup data.

DX System Configuration

The DX can be used to configure a system as shown below.
Referenced sections are of the *DX1000/DX1000N User's Manual*.
Referenced pages are of this manual.



*: Options

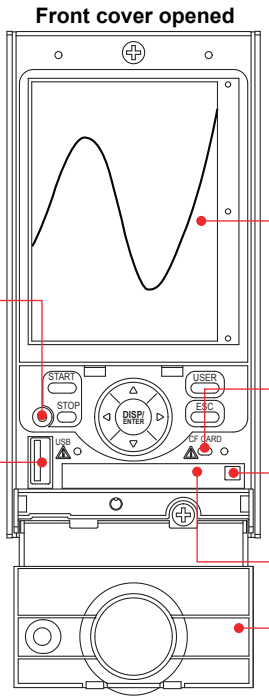
Terminology

- **Memory sample**
  The operation of recording measured data.
- **Memory start**
  The operation of starting the memory sample.
- **Memory stop**
  The operation of stopping the memory sample.
- **Display data**
  The waveform data shown on the DX display. The data recorded at the sampling interval for the displayed data.
- **Event data**
  Measured data recorded at a sampling interval separate from that of the display data.

Operation

Names of Parts

Front View



Power indicator
Illuminates in orange when the power is turned ON. Illuminates in green while memory sample is in progress.

USB port
A USB port conforming to Rev. 1.1.

LCD
Display various operation displays such as the trend display as well as setup displays.

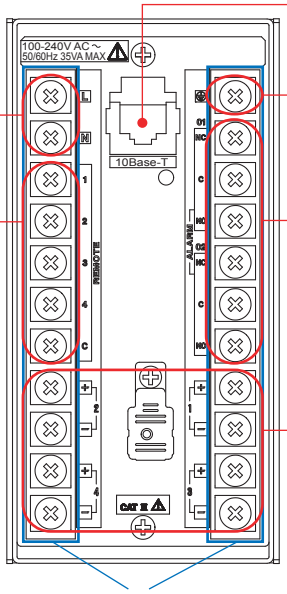
Memory access indicator

CF card eject button
Ejects the CF card.

CF card slot

Front cover
Open the cover by pulling on the tab at the top center.

Rear Panel



Ethernet port
A 10Base-T port.

Protective ground terminal

Power supply terminal

Optional terminals (/R1 option)
Connect the remote control input signal wires.

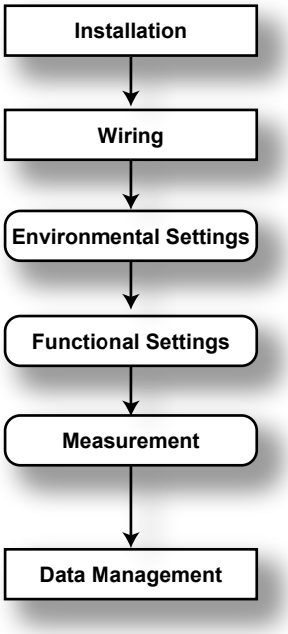
Optional terminals (/A1 or /F1 options)
Connect optional output signal wires.

Signal input terminal
Connect input signal wires from the measured item.

Terminal block (with a terminal cover)
Various terminals are arranged.

Workflow

When using the DX for the first time, carry out the following procedure.



Install the DX.
▶Page 47 and subsequent pages

Connect input/output wires to the terminals and connectors on the rear panel, and connect the power cord.
▶Page 51 and subsequent pages

Set the date/time, load the CF card, and so on.
▶Page 13 and subsequent pages

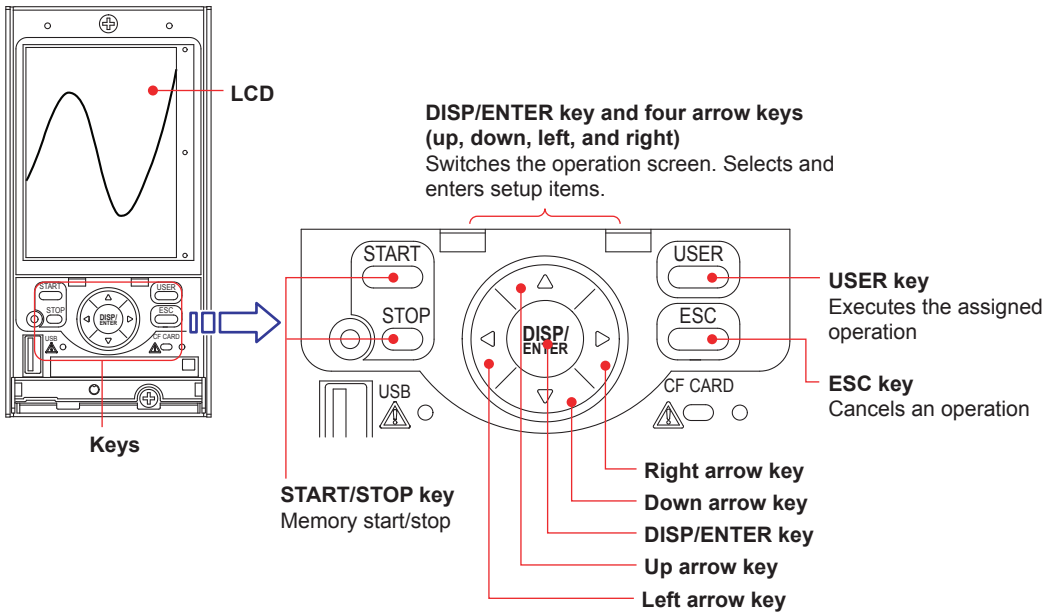
Set measurement functions.
▶Page 17 and subsequent pages

Start the measurement. Perform operations such as switching the screen and writing messages. Save the measured data.
▶Page 24 and subsequent pages
▶Section 4.1 in the DX1000/DX1000N User's Manual (IM 04L41B01-01E)

Check and manage the measured data.
Use the software program, DAQSTANDARD, to display the measured data and convert the measured data to Excel, Lotus 1-2-3, and ASCII formats.
▶Page 45 and subsequent pages
▶DAQSTANDARD Viewer User's manual (IM 04L41B01-63EN)

Basic Operation

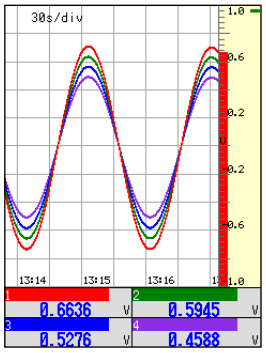
Panel Keys



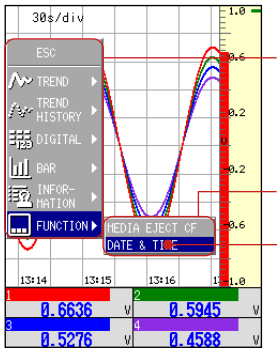
Changing the Date/Time

In this example, we will change the date from the 1st to the 6th. After carrying out this step, reset the time to the correct date/time.

1. Show the operation display.



2. Press **DISP/ENTER** once. The display menu appears.
3. Press the **up arrow key** or **down arrow key** to select **FUNCTION**.
4. Press the **right arrow key** once to display the sub menu.
5. Press the **up arrow key** or **down arrow key** to select **DATE & TIME**.
   * To clear the **DATE & TIME** item from the display menu, see page 35.

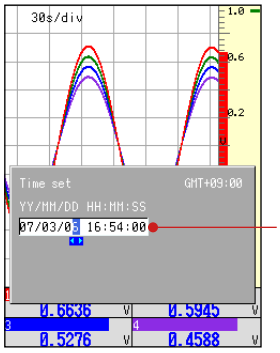


Display menu

Sub menu

Select DATE & TIME

6. Press **DISP/ENTER** once. The **Time set** window appears.
7. Change the date from 01 to 06.
   Select the input position: Press the **right arrow key** five times. The cursor moves.
   Select the value: Press the **up arrow key** five times. **6** is displayed.



Time set window (When 6 is displayed)

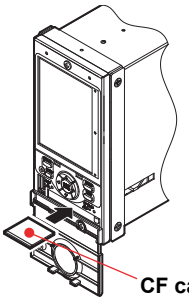
8. Press **DISP/ENTER** once. The setting is confirmed, and the **Time set** window clears.
   Cancel the setting: Press **ESC** before pressing **DISP/ENTER**.

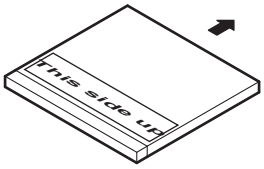
Operation complete.

Setting or Removing the CF Card

Setting the CF Card

1. Open the front cover.





With the label "This side up" facing up

CAUTION

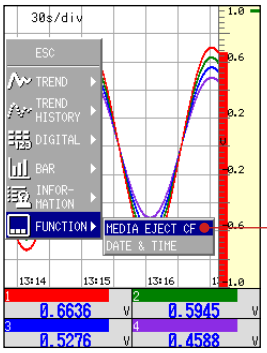
Forcing the CF card into the slot with the upside down may cause damage.

2. Insert a CF card into the slot.
   The message "Media was recognized." appears.
3. Close the front cover.

Operation complete.

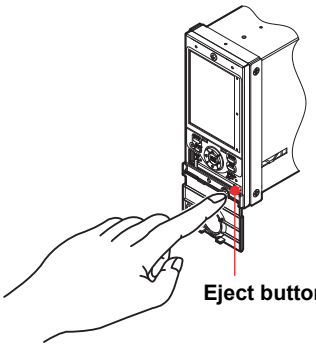
Removing the CF Card

1. Press **DISP/ENTER** once. The display menu appears.
2. Press the **up arrow key** or **down arrow key** to select **FUNCTION**.
3. Press the **right arrow key** once to display the sub menu.
4. Press the **up arrow key** or **down arrow key** to select **MEDIA EJECT CF**.

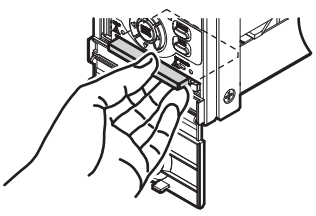


MEDIA EJECT CF

5. Press **DISP/ENTER** once.
   The message "Media can be removed safely" appears. The light blue CF card icon appears.
6. Open the front cover.
7. Press the CF card eject button, and remove the CF card.
   When you eject the CF card, the light blue CF card icon clears.



Press the eject button in until it clicks. The eject button stops at depressed position.



8. Close the front cover.

Operation complete.

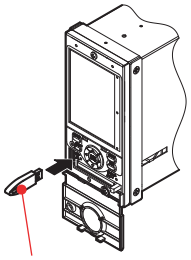
Note

- The data in the internal memory can be stored on a CF card. The storage operation can also be aborted.
  1. Select the file to be saved in **INFORMATION** > **MEMORY SUMMARY** of the display menu, and select **INFORMATION** > **SELECT SAVE** or **ALL SAVE** from the display menu to execute the data storage operation.
  2. You can abort the data storage operation by selecting **FUNCTION** > **SAVE STOP** from the display menu.
- If you remove the CF card without carrying out the media eject procedure, the message “Media was removed compulsorily” appears. Eject the CF card by carrying out steps 1 to 8 to prevent damaging the data that is stored.
- When closing the front cover, check that the CF card and the eject button are in the depressed position.

Setting or Removing the USB Flash Memory

Setting the USB Flash Memory

1. Open the front cover.



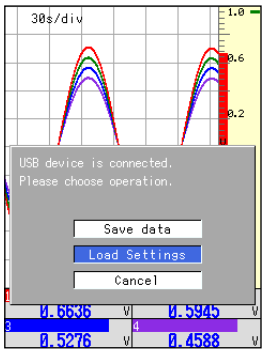
USB flash memory

2. Connect a USB flash memory to the USB port.
   The window shown in the figure below or the message “USB device is connected.” appears. If the window in the figure below appears, press the **up arrow key** or **down arrow key** to select **Cancel**, and press **DISP/ENTER** once.

Operation complete.

Loading a Setup File from the USB Flash Memory

1. Open the front cover.
2. Show the operation display.
3. Connect a USB flash memory containing the setup file to the USB port.
   A following window appears.



4. Press the **up arrow key** or **down arrow key** to select **Load Settings**, and press **DISP/ENTER** once.
   A list of setup files stored on the USB flash memory appears.
   For a description of the selections that appear when you connect a USB flash memory, see section 2.12 in the *DX1000/DX1000N User's Manual (IM 04L41B01-01E)*.
5. Press the **up arrow key** or **down arrow key** to select the file you want to load, and press **DISP/ENTER** twice.

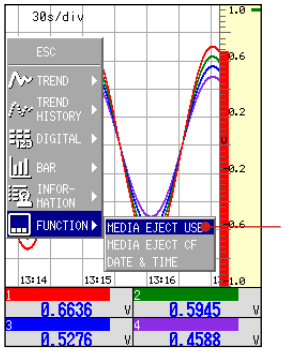
Operation complete.

Note

If you connect a USB flash memory to the DX and load a setup file, the settings of the setting mode and basic setting mode are loaded.

Removing the USB Flash Memory

1. Press **DISP/ENTER** once. The display menu appears.
2. Press the **up arrow key** or **down arrow key** to select **FUNCTION**.
3. Press the **right arrow key** once to display the sub menu.
4. Press the **up arrow key** or **down arrow key** to select **MEDIA EJECT USB**.



5. Press **DISP/ENTER** once.
   The message "Media can be removed safely" appears.
6. Remove the USB flash memory.
7. Close the front cover.

Operation complete.

Note

- The data in the internal memory can be stored on a USB flash memory. The storage operation can also be aborted.
  1. Select the file to be saved in **INFORMATION** > **MEMORY SUMMARY** of the display menu, and select **INFORMATION** > **SELECT SAVE** or **ALL SAVE** from the display menu to execute the data storage operation.
  2. You can abort the data storage operation by selecting **FUNCTION** > **SAVE STOP** from the display menu.
- If you remove the USB flash memory without carrying out the media removal procedure, the message "Media was removed compulsorily." appears. Remove the USB flash memory by carrying out steps 1 to 7 to prevent damaging the data that is stored.

Setup Procedure

This section describes the operating procedures of the DX. You cannot set the setting mode and basic setting mode from the front panel keys of the DX. Use the USB keyboard for this task. For an explanation of the settings, see the following manuals. Note that the operating procedures of the DX differ from those described in the DX1000/DX1000N/DX2000 manual. Familiarize yourself with the setup procedures described in this manual before reading the manuals.

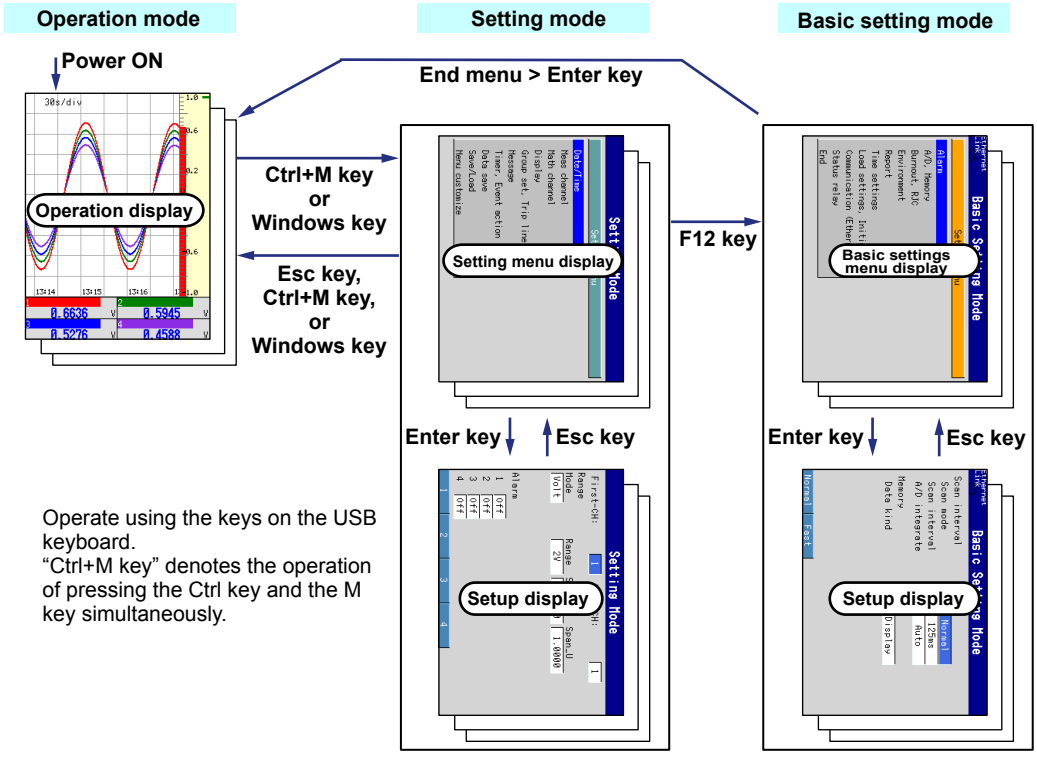
Contents	Manual Title
Operating procedures of the DX and the functional explanation and setup operations only for the DX	DX364 User's Manual (IM 04L70B01-01E)
Frequency used setup procedures	DX1000/DX1000N Operation Guide (IM 04L41B01-02E)
Detailed functional explanation and setup procedures	DX1000/DX1000N User's manual (IM 04L41B01-01E)

Note

The manuals are written with the displays of the setting mode and basic setting mode rotated 90 degrees counterclockwise.

Run Modes

Mode Transition Diagram



Operate using the keys on the USB keyboard.
"Ctrl+M key" denotes the operation of pressing the Ctrl key and the M key simultaneously.

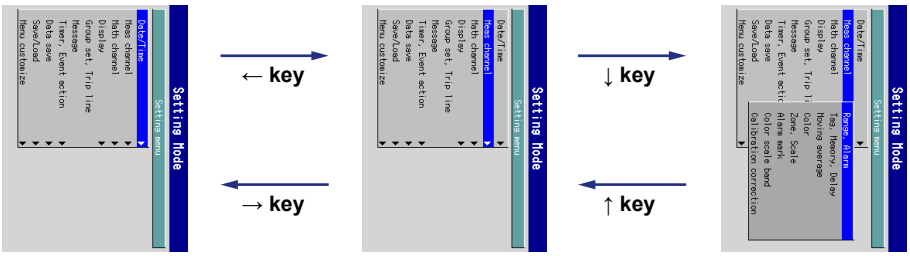
The DX has three modes.

Mode Type	Description
Operation mode	A mode for performing measurements.
Setting mode	A mode in which input range, measurement mode, and so on are configured. Settings can be changed when memory sample is in progress excluding some items.
Basic setting mode	A mode used to set basic items such as the scan interval and storage format of measured data. You cannot switch to this mode when memory sample or computation is in progress.

* For the default values of the setting mode and basic setting mode, see pages 40 to 44.

Relationship between the Display Orientation and Key Operation

The display of the setting mode and basic setting mode is shown horizontally and rotated 90 degrees clockwise as shown below. Operate the DX as follows:



Operate using the keys on the USB keyboard

Setting the DX Using the USB Keyboard

You cannot set the setting mode and basic setting mode from the front panel keys of the DX. Use the USB keyboard for this task.

- **Mapping of the Keys on the DX to the Keys on the USB Keyboard**

DX364 Key	DX1000 Key	Key on the USB keyboard	Notes
	(Keys written in the manuals)	104 keyboard for the PC (US)	
DISP/ENTER	DISP/ENTER	Enter, Num Enter	
Left arrow	Left arrow	←	See “Relationship between the Display Orientation and Key Operation” above.
Up arrow	Up arrow	↑	
Down arrow	Down arrow	↓	
Right arrow	Right arrow	→	
Arrow	Arrow	Tab, Shift+Tab*3	
START	START	Ctrl+S*2	
STOP	STOP	Ctrl+P*2	
ESC	ESC	Esc	
USER	USER	Ctrl+U*2	
–*1	FUNC	F9	
–*1	Soft keys	F1 to F5*4	
–*1	MENU	Ctrl+M*2, Windows	Setting mode
–*1	Hold down FUNC for 3 s	F12	From the setting mode to the basic setting mode

*1 There is no corresponding key on the DX. Use the USB keyboard.

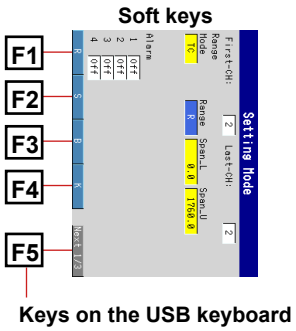
*2 Press the Ctrl key and the corresponding key simultaneously.

*3 Moves the cursor to the next item (Tab) or the previous item (Shift+Tab) when selectable items are displayed. However, they do not work in the following displays.

Operation display, setup menu display, character or number input display, menu customize setup display, and file operation display.

*4 Use the F1 to F5 keys as follows:

- For the key operations of the FUNC key menu, see page 25.
- For the soft keys of the setting mode and basic setting mode, see the figure below.



Note

- You can connect or disconnect the USB keyboard regardless of the DX status.
- One keyboard can be connected.
- Use a keyboard appropriate for the language setting on the DX.

● Entering Alphabets, Numbers, and Symbols

Symbols that can be used for units, tags, and messages are as follows:

#	%	(	)	–	°	@	+	*	.	/	_	Space

Use the **^ key** to enter the degree symbol.

However, symbols that can be used in expressions and data save destination directory are as follows:

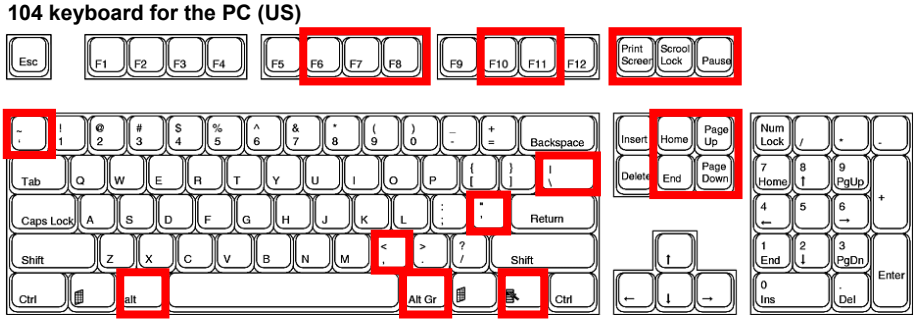
Expression	(	)	–	+	*	:	[	]	.	/	?	Space
Data save destination directory name*	#	%	(	)	–	°	@	+	.	_	Space	

* If you enter °, it becomes ^ in a folder name on the PC.
The following combinations cannot be entered.
All spaces, space or period as the first character, and period as the last character

● Invalid Keys

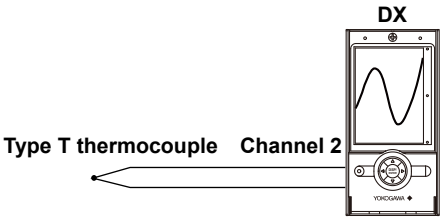
Keys enclosed in a frame are invalid.

104 keyboard for the PC (US)

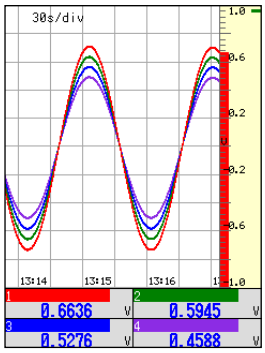


Operation Example in Setting Mode: Setting the Input Range

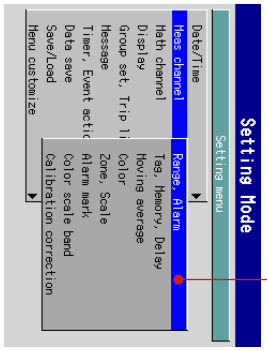
Set the input range of channel 2 to thermocouple type T and 0.0 to 400.0°C.
The procedure below is given using the keys on the USB keyboard.



1. Show the operation mode display.

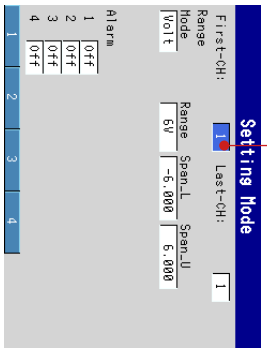


2. Press the **Ctrl+M key** or the **Windows key** once. The **Setting menu** appears.
3. Press the ← **key** once to select **Meas channel**.
4. Press the ↓ **key** once.



Select the Range, Alarm

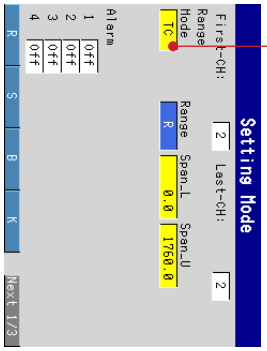
5. Press the **Enter key** once.



Select First-CH
(The selected area is displayed using a blue cursor.)

6. Press the **F2 key (2)** once. The **Last-CH** is also set to **2**.
7. Press the ↓ **key** or **Tab key** once. The cursor moves to **Mode**.

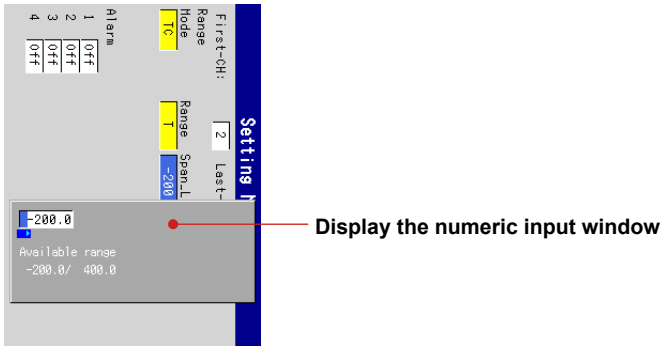
8. Press the **F3 key (TC)** once. The cursor moves to **Range**. The changed item is displayed in yellow.



9. Press the **F5 key (Next)**.

10. Press the **F3 key (T)** once. The cursor moves to **Span_L**.

11. Press the **F1 key (Input)** once.

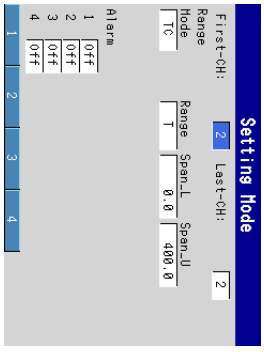


12. Enter “0.0” in the **Span_L** box.

Select the digit:	Press the → **key** once. The cursor in the text box moves.
Enter characters:	Press the **Space key** three times.
Enter the input:	Press the **Enter key** once. **Span_L** is set, and the cursor moves to **Span_U**.
Cancel the setting:	Press the **Esc key** before pressing the **Enter key** (entering the input).

13. Enter “400.0” in the **Span_U** box.
    See step 12.

14. Press the **Enter key** once. The changed items are entered, and the cursor returns to First-CH. The changed items change from yellow to white.



15. Press the **Esc key** three times or the **Windows key** twice. The DX returns to the operation mode screen.

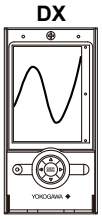
Operation complete.

Operation Example in the Basic Setting Mode: Changing the Scan Interval

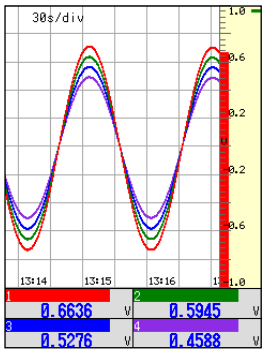
In this example, we will change the scan interval. Here, the scan interval on the DX is changed to 250 ms.

The procedure below is given using the keys on the USB keyboard.

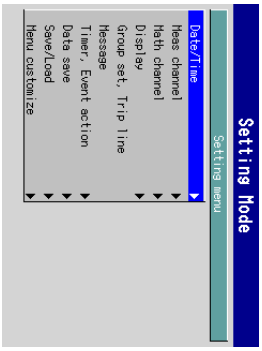
Measures every 250 ms



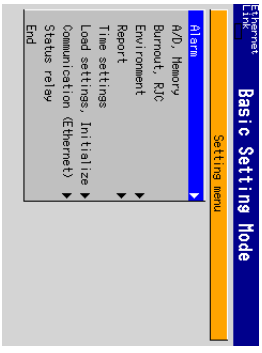
1. Show the operation display.



2. Press the **Ctrl+M key** or the **Windows key** once. The **Setting menu** appears.

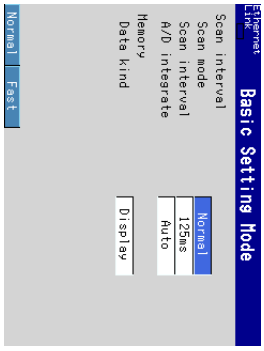


3. Press the **F12 key** once. Display the **Setting menu** of the basic setting mode.

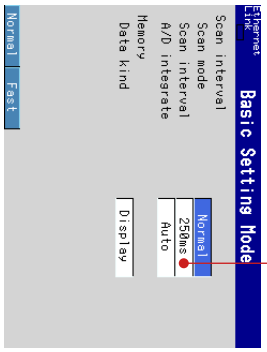


4. Press the ← **key** once. Select **A/D, Memory**.

5. Press **Enter key** once.

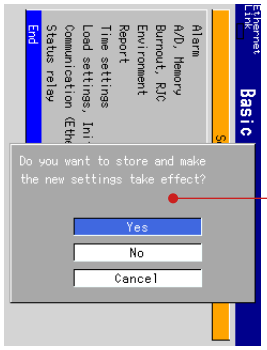


6. Press the ← **key** once. The cursor moves to **Scan interval**.
7. Press the **F2 key (250ms)** once. The cursor moves to **A/D integrate**. The changed item is displayed in yellow.
   Cancel the setting: Press the **Esc key** before pressing the **Enter key**.
8. Press the **Enter key** once. The changed items are entered, and the cursor returns to **Scan mode**.



Set the scan interval to 250 ms

9. Press **Esc** once to return to the basic setting mode menu.
10. Press the → **arrow key** twice to move the cursor to **End**.
11. Press **Enter key** once.



Display the confirmation window

12. Press **Enter key (Yes)** once. The settings are saved, and the DX returns to the operation mode screen.
    Discard the changes: Select **No** and press the **Enter key**.
    Do not end the basic setting mode: Select **Cancel** and press the **Enter key**.

Operation complete.

Note

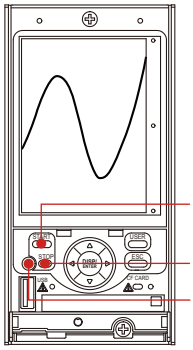
To store the setup data to an external storage medium, see section 6.9 in the *DX1000/ DX1000N User's Manual (IM 04L41B01-01E)*.

Operation

Starting or Stopping the Memory Sample

• Starting the Memory Sample

1. Press the **START key** once.
   Memory sample starts.



Operation complete.

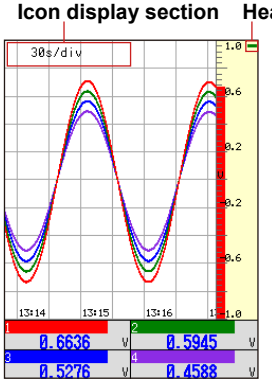
• Stopping the Memory Sample

1. Press the **STOP key** once.
2. Use the **up** or **down arrow keys** to select **Mem+Math**.
   Mem+Math: Stops memory sample and computation (/M1 option).
   If the model does not have the computation function (/M1 option), a confirmation message “Do you want to stop data storage?” appears. Select **Yes**.
3. Press **DISP/ENTER** once.

Operation complete.

Status Icons That Appear on the Display

The following icons appear in the measurement data display section.



Alarm icon

(Red) Displayed when any alarm is activated. Blinks when there are alarms that are occurring but have not been acknowledged.*

(Green) All alarms have been released after they have occurred, but there are alarms that have not been acknowledged.*

* Activated when configured to use alarm ACK. For details on how to set the alarm ACK function, see section 1.2 in the *DX1000/DX1000N User’s Manual (IM 04L41B01-01E)*.

Status icon

The status assigned to the status output relay (/F1 option) is occurring.

Heart Beat icon

Switches at a constant interval when the DX is operating normally.

CF card icon

(Red) Displayed when the remaining amount of space on the CF card is less than or equal to 10%.

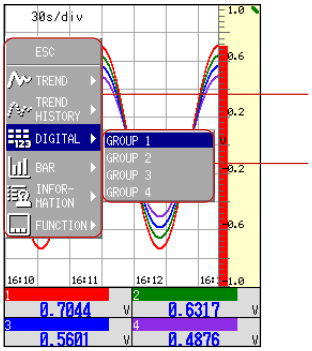
(Light blue) A CF card is inserted in the slot but is not detected. Eject the CF card and set the CF card again to detect it.

(Dark blue) (Red) (Light blue) CF card error.

Operating the Display Menu and FUNC Key Menu

- **Display Menu**

1. Press **DISP/ENTER** once. The display menu appears.
2. Press the **up** or **down arrow key** to select the item you want to display.
3. Press the **right arrow key** once to display the sub menu.
4. Press the **up** or **down arrow key** to select the item you want to display.



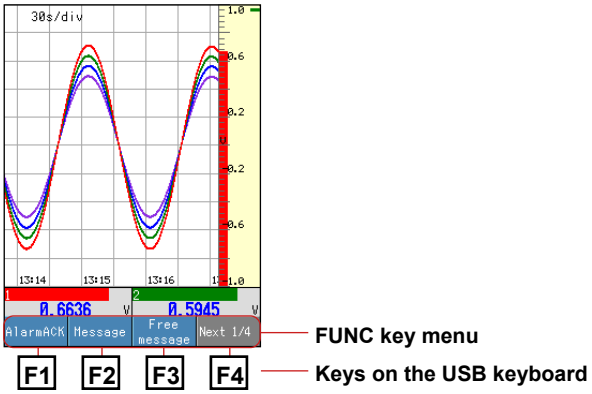
5. Press **DISP/ENTER** once to display the selected item.
   To close the menu without switching the display, press **ESC**.

Operation complete.

- **FUNC Key Menu**

You can acknowledge alarms, write messages, and carry out operations related to computation and timer while the DX operation is in progress.
You need a USB keyboard to use the FUNC key menu. The procedure below is given using the keys on the USB keyboard.
For details on FUNC key menu, see section 4.1 in the *DX1000/DX1000N User's Manual (IM 04L41B01-01E)*.

1. Press the **F9 key** once to display the FUNC key menu.
2. Press any of the **F1** to **F3 keys** once to execute the corresponding action.
   Press the **F4 key** once to switch the menu corresponding to the **F1** to **F3 keys** to the next item.
   To close the menu without executing the action, press the **F9 key** or the **Esc key**.



Operation complete.

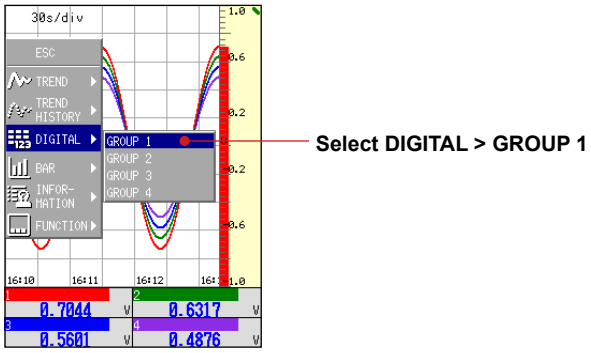
Note

You can select whether to display the menu items in the display menu and FUNC key menu using the menu customize function. See section 5.17 in the *DX1000/DX1000N User's Manual (IM 04L41B01-01E)*.

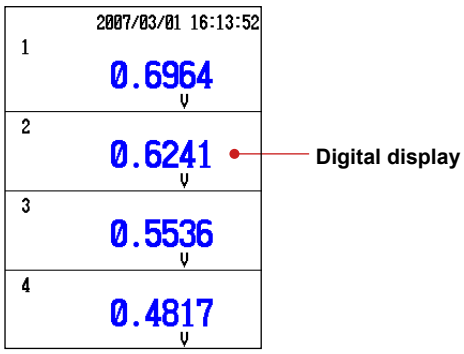
Switching among Trend Display, Digital Display, and Bar Graph Display

● Switching the Display Using the Display Menu

1. Press **DISP/ENTER** once to show the display menu.
2. Press the **down arrow key** to select **TREND**, **DIGITAL**, or **BAR**.
3. Press the **right arrow key** once to display the sub menu. To close the sub menu that you opened, press the **left arrow key**.
4. Press the **down arrow key** to select the group.



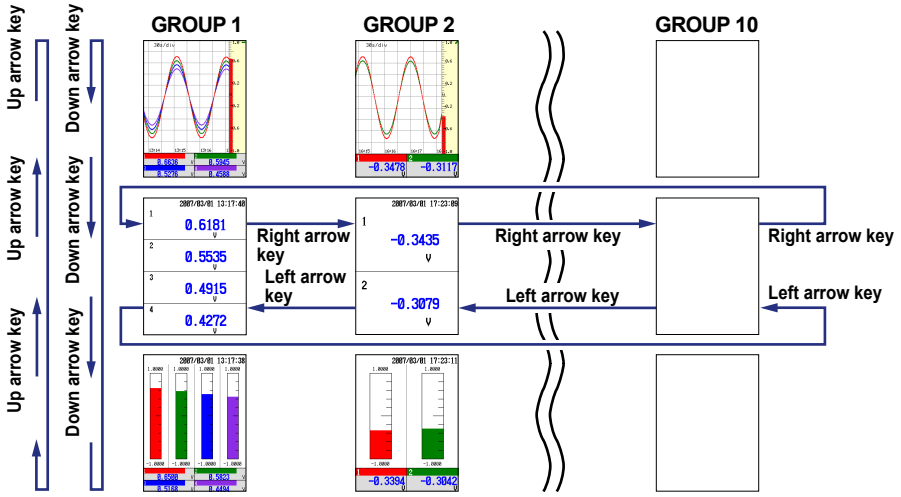
5. Press **DISP/ENTER** once to show the operation display of the selected group.



Operation complete.

● Switching the Display Using the Arrow Keys

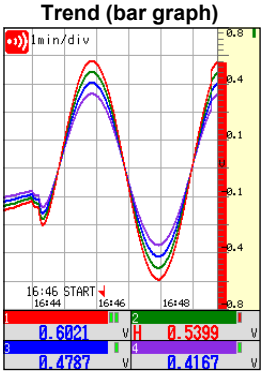
Press the **up** or **down arrow key** to switch the display type. Press the **left** or **right arrow key** to switch the display group.



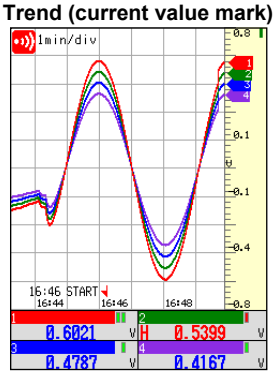
Available Displays

The following displays can be shown.

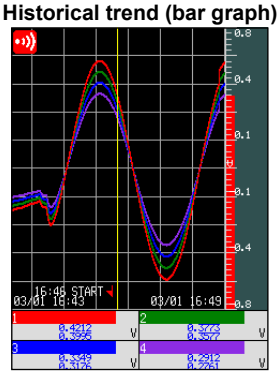
Trend (bar graph)



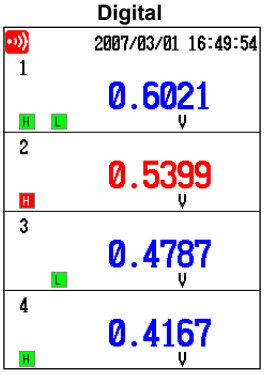
Trend (current value mark)



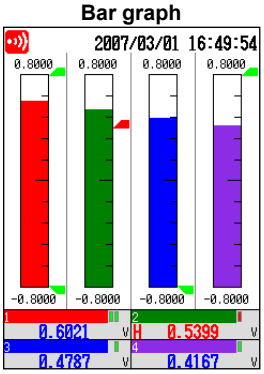
Historical trend (bar graph)



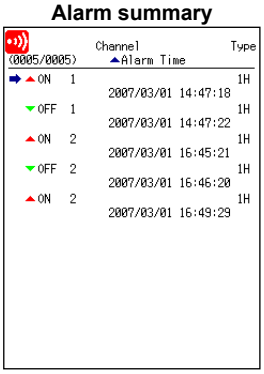
Digital



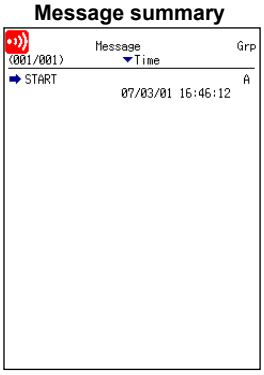
Bar graph



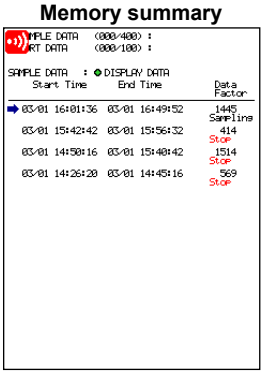
Alarm summary



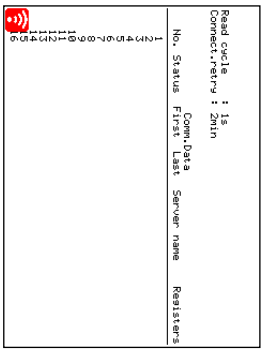
Message summary



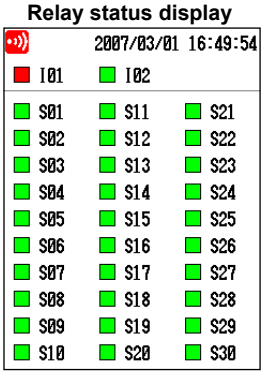
Memory summary



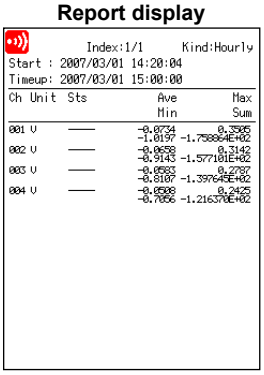
Modbus client



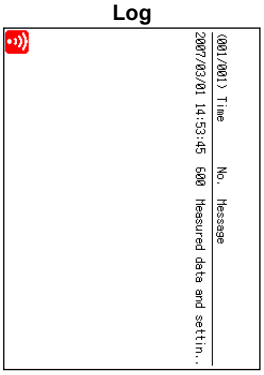
Relay status display



Report display



Log



The following types of logs are available.

- Login
- Error
- Communication
- FTP transfer
- WEB
- E-mail Transmission
- SNTP
- DHCP
- MODBUS

DX364 Functions and the Default Values of Setup Items

Comparison Table of DX364 and DX1004 Functions and Specifications

Description	Details	DX364		DX1004
Structure	External dimensions	72 (W) x 144 (H) x 406 (D) mm (projections excluded). D: Depth from the panel surface		144 (W) x 144 (H) x 223 (D). D: Depth from the panel surface
	Weight	Approx. 2.9 kg (excluding the mounting bracket set)		Approx. 2.9 kg (excluding options and mounting brackets)
	Dust-proof, water-proof structure of the front panel	None		Complies with IEC529-IP65 and NEMA 4 (water-proof)
	Functional ground terminal	None		Available
	Door lock function	None		Available
	Structure allowing the inner instrument to be pulled out from the front panel	Available		DX1004: None, DX1004N: Available
Power supply	Maximum power consumption	26 VA (100 VAC), 35 VA (240 VAC)		45 VA (100 VAC), 60 VA (240 VAC)
	Power consumption under normal operation	16 VA (100 VAC), 23 VA (240 VAC)		24 VA (100 VAC), 32 VA (240 VAC)
	Power consumption when the LCD backlight is off	14 VA (100 VAC), 20 VA (240 VAC)		15 VA (100 VAC), 25 VA (240 VAC)
Keys	Keys on the DX	START key, STOP key, DISP/ENTER key, up, down, left, and right arrow keys, USER key, and ESC key		START key, STOP key, DISP/ENTER key, up, down, left, and right arrow keys, USER key, ESC key, Favorite key, MENU key, FUNC key, and soft keys.
	STOP key operation	Select **Mem+Math** or **Cancel** for the STOP operation on models with the /M1 option.		Select **Mem+Math**, **Mem**, or **Cancel** for the STOP operation on models with the /M1 option.
Storage	Internal memory size	80 MB		80 MB (standard memory) or 200 MB (expanded memory)
Functions	Batch function	None		Available
	Log display function	Available	See pages 30 to 39 in the DX364 User's Manual (this manual).	None
	Simulation function	Available		None
	Clearing the internal memory/ displayed waveform	Available		None
	Turn ON/OFF the time display	Available		None
	Number of channel display digits of the current value mark	Available		None
	Turn ON/OFF the **DATE & TIME** display on the display menu	Available		None
	Display alarm ranges using color band	Available		None
External media	USB flash memory	Settings of the basic setting mode and setting mode are loaded by default when loading the data at the time the memory is connected.		Settings of the setting mode are loaded by default when loading the data at the time the memory is connected.
	Media removal	Operate from the display menu or FUNC key menu		Operate using the FUNC key
	Abort all data save	Operate from the display menu or FUNC key menu		Operate using the FUNC key
Input section	Number of inputs and scan interval	4 inputs, 125/250 ms (high-speed mode: 25 ms)		4 inputs, 125/250 ms (high-speed mode: 25 ms)
	Input type	DC voltage, TC, and DI		DC voltage, TC, RTD, and DI
	Input computation	Log, delta computation (DC voltage, TC, and DI), scaling (DC voltage, TC, or DI), square root computation, and 1-5V		Delta computation (DC voltage, TC, RTC, and DI), scaling (DC voltage, TC, RTC, or DI), square root computation, and 1-5V
Display	Display	3.5-inch color TFT LCD		5.5-inch color TFT LCD
		240 (horizontal) × 320 (vertical) dots		320 (horizontal) × 240 (vertical) dots
	Language	English or Japanese		English, Japanese, German, French, or Chinese
	Status display section	None Displays the following icons at the top section of the display. Alarm, media unmount, media error, and status relay		Available Displays the group, date/time, user name, memory sample status, and various icons.
	Display group	4 channels/group maximum		6 channels/group maximum
	Scale display position	1 to 4		1 to 6
	String entry	Does not display a keypad (Unable to enter from the DX keys. Enter using a USB keyboard.)		Displays a keypad (Enter from the DX keys or a USB keyboard (USB port: /USB1 option))
Description	**Details**	**DX364**		**DX1004**

Description	Details	DX364	DX1004
Display	Trend display		
	Display type	Wide	Horizontal, vertical, wide, or split
	Historical trend display		
	Display type	Half screen display not available	Half screen display available
	Display value	Current minimum and maximum display	Total minimum and maximum display as well as current minimum and maximum display
	Digital display		
	Time display	Available	Shown in the status display section
	Bar graph display		
	Display direction	Vertical	Horizontal or Vertical
	Base position	Lower	Normal, center, lower, or upper
	Overview display	None	Available
	Information display		
	MODBUS client	Displayed horizontally and rotated clockwise by 90 degrees	Horizontal display
	Log display	Displayed horizontally and rotated clockwise by 90 degrees	Horizontal display
	Setup display	Displayed horizontally and rotated clockwise by 90 degrees	Horizontal display
	FUNC key menu	4 items maximum.	5 items maximum.
	Display menu	Items below in addition to the DX1004 display menu Media removal function, save abort function, and time setting function	–
	Power On screen	Displayed horizontally and rotated clockwise by 90 degrees	Horizontal display
	System information screen	ROM part number added to version	–
	Network information screen	Ethernet link indicator added to the upper right of the display.	–
	Favorite display function	None	Available
WEB server	WEB display	Displayed in 240 (horizontal) × 320 (vertical) dot resolution	Displayed in 320 (horizontal) × 240 (vertical) dot resolution
	Favorite key	None	Available
	Other displays	Bar graph and digital	Bar graph, digital, and overview
Options	Alarm output relay	2 outputs (/A1)	2 outputs (/A1), 4 outputs (/A2), 6 outputs (/A3)
	Remote control (/R1)	4 inputs	8 inputs
		Items below in addition to the DX1004 control Memory clear and start/stop screen update	–
	USB Interface	Standard: 1 port on the front panel	Option (/USB1): 1 port each on the front and rear panels
	Switches for computation (/M1)	D01-D04 (/R1 option), I01-I02 (/A1 option), S01-S30 (internal switch), and F1-F8 (flag) However, D05-D08, I03-I06, P01-P08, and Q01-08 can be specified in the expression, but the value is fixed to zero.	D01-D08 (/R1 option), I01-I06 (/A□ option), S01-S30 (internal switch), F1-F8 (flag), P01-P08 (/PM1 option: pulse scan interval), and Q01-Q08 (/PM1 option: pulse 1-second interval)
	24-VDC/AC power supply power consumption (/P1)	24 VDC: 13 VA (maximum), 8 VA (normal operation), 6 VA (with the LCD backlight turned off)	24 VDC: 28 VA (maximum), 15 VA (normal operation), 8 VA (with the LCD backlight turned off)
		24 VAC (50/60 Hz): 25 VA (maximum), 15 VA (normal operation), 14 VA (with the LCD backlight turned off)	24 VAC (50/60 Hz): 45 VA (maximum), 24 VA (normal operation), 15 VA (with the LCD backlight turned off)
	Options that can only be installed only to the DX1000 and not the DX364	Serial interface (/C2 and /C3), clamp input terminal (/H2), desktop type (/H5□), special RTD input (/N1, /N2, and /N3), 24-VDC transmitter power supply (/TPS2 and /TPS4), easy text entry (/KB1 and /KB2), and pulse input (/PM1)	
Standard software	DAQSTANDARD (software for configuration and data display)	DXA120/S2	See pages 45 and 46 in the DX364 User's Manual (this manual).	DXA120

Features and Specifications of the DX1004 with Release Numbers 3 and 4

The DX364 does not have the new features that have been added to the DX1004 in release numbers 3 and 4. Pages iv and v in the DX1000/DX1000N User's Manual contains a list of features that have been added to the DX1004 in release numbers 3 and 4. The new features are also indicated with "release number 3 or later" or "release number 4 or later" in the functional and procedural explanations in the user's manuals.

Log Display Function

Setting the Log Display

● Function

Measures the DC voltage and displays the data using a Log scale (common logarithm). The following computation is carried out, and the result is displayed.

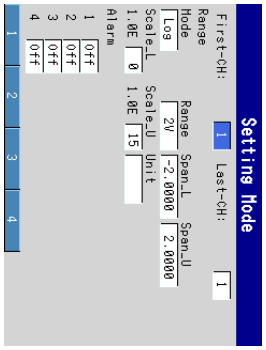
Input voltage: X
Upper limit of display span: VU
Upper limit of scaling: SU
Lower limit of display span: VL
Lower limit of scaling: SL
Displayed value: Y

Then, We obtain

$$Y = 10^{(SU - SL) \times (X - VL)/(VU - VL) + SL}$$

● Setup Display

Press **Ctrl+M key** or **Windows key** (switch to the setting mode), and select **Meas channel** > **Range, Alarm**



● Setting

Set the following items to the log display channel.

Mode (Log), range (20 mV to 50 V), span lower limit, span upper limit, lower limit of the exponent of the scale, upper limit of the exponent of the scale, and unit

Note

- You can set the exponent of the scale in the range from 1.0E-15 to 1.0E+15.
- Set the lower and upper limits of the exponent of the scale so that the upper limit is greater than the lower limit.
- The maximum exponential difference between the lower and upper limits of the scale is 15.
- Set the alarm type to H, L, T, or t.
- The alarm hysteresis is fixed to 0%.
- Set the alarm value using a voltage value.
- The following functions cannot be used on a channel set to Log display.
  - Expression (/M1 option): The computed result is error.
  - Report channel (/M1 option): The result is error.
  - Partial expanded display: Cannot be specified.
  - Delta computation: The computed result is error.
  - Calibration correction (/CC1 option): Cannot be specified.

● Communication Command

SR___Sets the input range

Sets the Log display

Syntax `SR p1,p2,p3,p4,p5,p6,p7,p8,p9`<terminator>

`p1` Measurement channel number (DX364: 001 to 004)
`p2` Input type (LOG)
`p3` Measurement range (20MV, 60MV, 200MV, 2V, 6V, 20V, or 50V)
`p4` Span lower limit
`p5` Span upper limit

p6 Lower limit of the exponent of the scale (-15 to 15)
p7 Upper limit of the exponent of the scale (-15 to 15)
p8 Decimal position (fixed to 0)
p9 Unit (up to 6 characters)

Query SR[p1]?

Example Set channel 002 to Log display. Set the measurement range to 6 V, the span to –6 V to 6 V, the lower limit of exponent to –5, the upper limit of exponent to 6, the decimal position to 0, and the unit to abc.
SR002,LOG,6V,-6000,6000,-5,6,0,abc

Description Parameter p7 must be greater than p6.
Make sure p7 – p6 does not exceed 15.
For other descriptions, see the *DX1000/DX1000N/DX2000 Communication Interface User's Manual (IM 04L41B01-17E)*.

Note

The communication output/binary data output value of the Log display channel is an A/D normalized value.*

* A scaled value taking the full span value of the range to be 20000.

Setting the Number of Digits of the Mantissa of the Log Scale Display

- **Function**
  Sets the number of displayed digits of the scale mantissa when Log display is specified to 2 or 3.
- **Setup Display**
  Press **Ctrl+M key** or **Windows key** (switch to the setting mode), press **F12 key** (switch to the basic setting mode) , and select **Environment** > **Digits, Time indicate**
- **Setting**
  Sets the number of displayed digits of the mantissa to 2 or 3.
- **Communication Command**

QA Sets the Number of Digits of the Mantissa of the Log Scale Display

Syntax QA p1<terminator>
p1 Number of displayed digits of the mantissa (2, 3)
2 Displays the mantissa in 2 digits
3 Displays the mantissa in 3 digits

Query QA?

Example Set the number of displayed digits of the mantissa to two.
QA2

Simulation Function

● Function

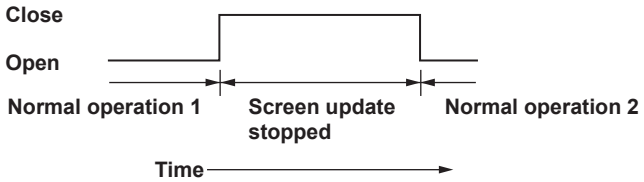
Stops or starts the screen updating using event action or communication command.

- For details on event action function, see chapter 7 in the *DX1000/DX1000N User's Manual (IM 04L41B01-01E)*.

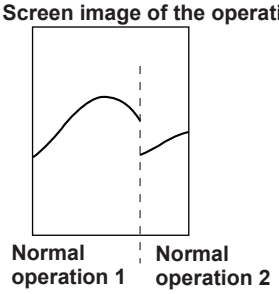
The event action **Display Freeze/Active** operates as a level action.

- Stops the screen updating if a open-to-close event (rising edge of the remote signal) is detected.
- Returns to normal operation if a close-to-open event (falling edge of the remote signal) is detected.

• Remote control signal



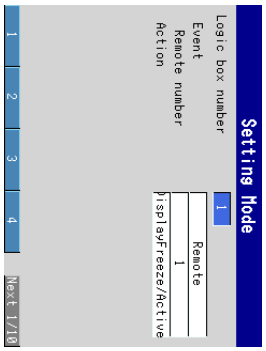
• Screen image of the operation



When the updating of the display is resumed, the current waveform is displayed from the stopped position.

● Setup Display

Press **Ctrl+M key** or **Windows key** (switch to the setting mode), and select **Timer, Event action** > **Event action**



● Setting

Event: Select **Remote**.

Remote number: Set the terminal number of the remote control function (/R1 option).

Action: Select **Freeze**.

- **Communication Command**

  QB Sets the simulation function or clears the internal memory and trend waveform

  Syntax `QB p1<terminator>`

  `p1` Action

  `0` Resume the updating of the screen.

  `1` Stop the updating of the screen.

  `2` Clear the internal memory and the trend.

  Example Stop the updating of the screen.

  `QB1`

Other Functions

Clearing the Internal Memory/Displayed Waveform

- **Function**

  Clears the internal memory and displayed waveform using event action or communication command. The data from the last automatic data storage until the reception of the signal is not saved to the CF card.

  - For details on event action function, see chapter 7 in the *DX1000/DX1000N User's Manual (IM 04L41B01-01E)*.

- **Setup Display**

  See the setup display (previous page) of the simulation function.

- **Setting**

  Event: Select **Remote**.

  Remote number: Set the terminal number of the remote control function (/R1 option).

  Action: Select **MemClear**.

- **Communication Command**

  See the QB command of the simulation function.

Turning ON/OFF the Time Display

- **Function**

  Shows/hides the time on the display.

- **Setup Display**

  Press **Ctrl+M key** or **Windows key** (switch to the setting mode), press **F12 key** (switch to the basic setting mode), and select **Environment** > **Digits, Time indicate**

- **Setting**

  Turns ON/OFF the time display.

- **Communication Command**

  QC Sets the time display

  Syntax `QC p1<terminator>`

  `p1` Show/hide the time display (ON or OFF)

  `ON` Show the time

  `OFF` Hide the time

  Query `QC?`

  Example Hide the time.

  `QCOFF`

Number of Channel Display Digits of the Current Value Mark (Applied Only to Computation Channels)

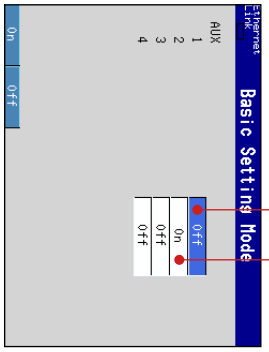
● Function

Sets the number of channel display digits of the current value mark.

Channel Type	Channel Display of the Current Value Mark	
	3 digits	2 digits
Computation channel (/M1 option)	101 to 112 	1 to 12 

● Setup Display

Press **Ctrl+M key** or **Windows key** (switch to the setting mode), press **F12 key** (switch to the basic setting mode), and select **Environment** > **AUX**



Number of channel display digits of the current value mark

Turn ON/OFF the time setting (see “Turning ON/OFF the Time Setting” on the next page)

● Setting

Set **1** as follows:

On: Sets the number of channel display digits to 2.

Off: Sets the number of channel display digits to 3.

● Communication Command

WUAUX **Sets the number of channel display digits of the current value mark, turns ON/OFF the time setting, or displays alarm ranges usinf color bands**

Syntax `WUAUX p1,p2,p3,p4`<terminator>

`p1` Number of channel display digits of the current value mark (ON or OFF)

`ON` Display using two digits

`OFF` Display using three digits

`p2` Show/hide the time setting on the display menu (ON or OFF)

`ON` Show the time setting

`OFF` Hide the time setting.

`p3` Alarm point mark display or color band display (ON or OFF)

`ON` Display alarm ranges using color bands.

`OFF` Display alarm point marks.

`p4` No function

Query `WUAUX?`

Example Set the number of channel display digits of the current value mark to 2, hide the time setting, and display alarm ranges usein color bands.

```
WUAUXON,OFF,ON,ON
```

Turning ON/OFF the Time Setting

- **Function**
  Shows/hides the **DATE & TIME** item on the display menu.

- **Setup Display**
  Set the following items as follows on the setup display of the “Number of Channel Display Digits of the Current Value Mark” (previous page).

- **Setting**
  Set **2** as follows:
  On: Show the time setting
  Off: Hide the time setting.

- **Communication Command**
  See the WUAUX command in “Number of Channel Display Digits of the Current Value Mark.”

Color Band Display (This function was added on January 2009)

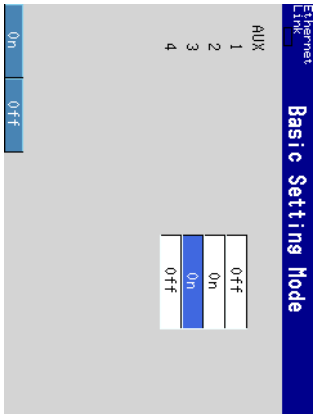
- **Function**

  Alarm ranges, which indicate the ranges in which alarms will occur, are displayed using color bands on the scale. If you combine this function with the color scale band, which displays a specified section of the measurement range using color bands on the scale, you can display the whole scale using different color bands. See the display example on the next page.

- **Setup Screen and Setup Items**

  Displaying Alarm Ranges Using Color Bands

  Press the **Ctrl+M key** or **Windows key** (switch to the setting mode), press the **F12 key** (switch to the basic setting mode), and select **Environment** > **AUX**

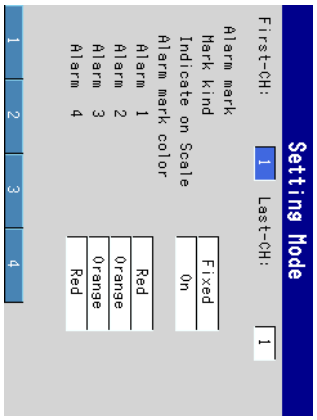


  Set **3** under **AUX** to **On**. This setting is common to all channels.

Settings	Description
On	Displays alarm ranges using color bands in the specified colors.
Off	Displays alarm point marks using the specified colors. For details, see section 5.8 in the DX1000/DX1000N User's Manual (IM04L41B01-01E).

  Setting the Colors of the Color Bands

  Press the **Ctrl+M key** or **Windows key** (switch to the setting mode), and select **Meas channel** > **Alarm mark**



  Specify colors for the color bands of each channel. Set **Mark kind** to **Fixed**, Indicate on **Scale** to **On**, and then specify colors for **Alarm 1** to **Alarm 4** under **Alarm mark color**.

Mark kind

Settings	Description
Fixed	Displays alarm ranges using color bands.
Alarm	Displays alarm point marks. For details, see section 5.8 in the DX1000/DX1000N User's Manual (IM04L41B01-01E).

Alarm mark color > Alarm 1 to Alarm 4

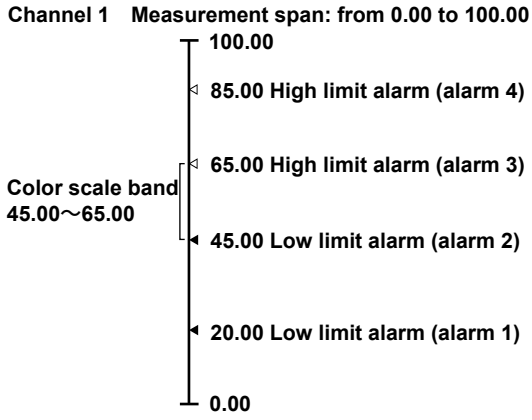
Settings	Description
24 colors	The band colors for alarm 1 to alarm 4 of the specified channel.

Color bands are displayed as follows:

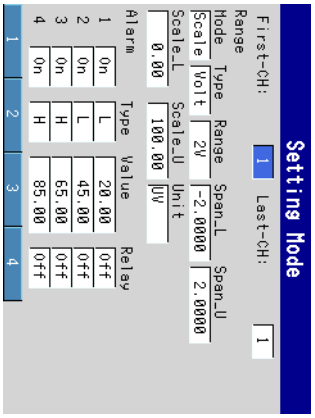
- Color bands are only displayed when the high limit alarm, low limit alarm, delay high limit alarm, delay low limit alarm, difference high limit alarm, or difference low limit alarm is set.
- Using the specified colors, color bands indicate alarm ranges. For example, consider a channel with measurement range of 0.00 to 100.00. If you set the high limit alarm to 50.00, the color band is displayed for the range from 50.00 to 100.00. As another example, consider the case in which you set a high limit alarm on alarm 2 at 50.00 and a high limit alarm on alarm 1 at 80.00. A color band using the color assigned to alarm 2 is displayed for the range from 50.00 to 80.00, and a color band using the color assigned to alarm 1 is displayed for the range from 80.00 to 100.00.

- **Setup and Display Examples (Using the Color Scale Band at the Same Time)**

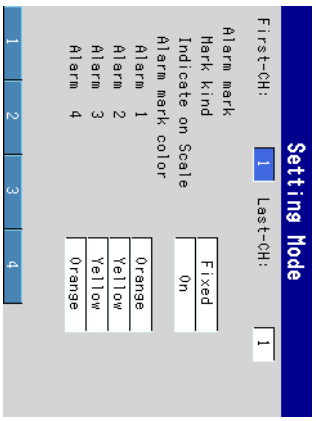
  Set the alarms and the color scale band on channel 1 as shown in the figure below. For details on the color scale band settings, see section 5.8 in the DX1000/DX1000N User's Manual (IM04L41B01-01E).



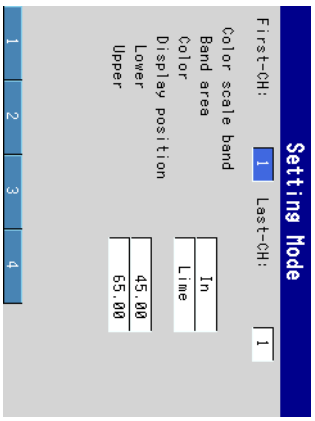
Alarm Setup Example



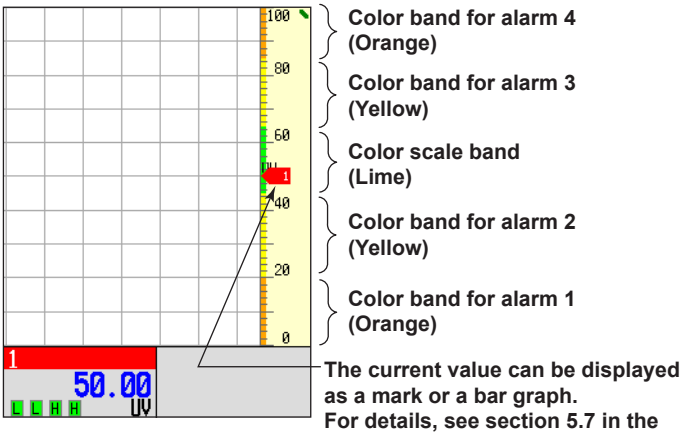
Color Band Setup Example



Color Scale Band Setup Example



Display Example Displaying Alarm Point Marks
(When **3** under **AUX** on the Environment page is set to **On**)



Color band for alarm 4 (Orange)

Color band for alarm 3 (Yellow)

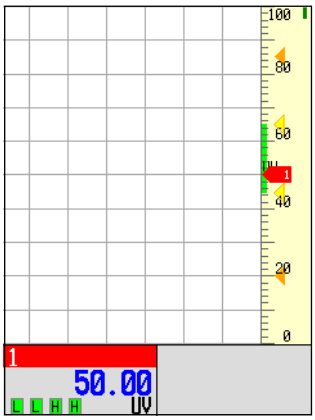
Color scale band (Lime)

Color band for alarm 2 (Yellow)

Color band for alarm 1 (Orange)

The current value can be displayed as a mark or a bar graph. For details, see section 5.7 in the DX1000/DX1000N User's Manual (IM04L41B01-01E).

Display Example Displaying Color Bands
(When **3** under **AUX** on the **Environment** page is set to **Off**)

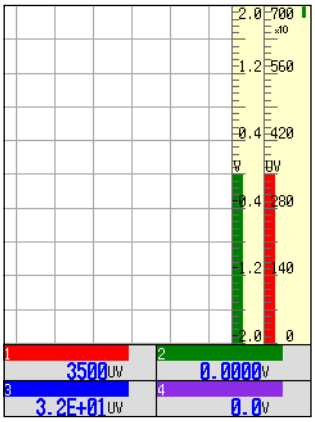


- **Communication Command**

  Use the WUAUX command to set whether or not to use color bands to display alarm ranges. For details on the WUAUX command, see page 34.

Larger Scale Font

The scale values are now displayed larger than with previous versions of the DX364.

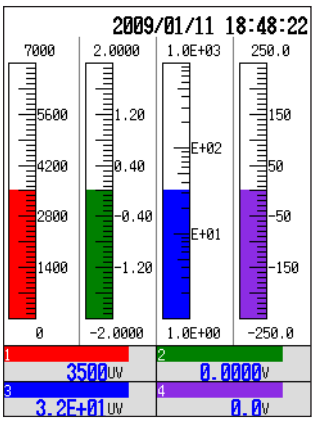


Changes to the Scales on the Bar Graph Display

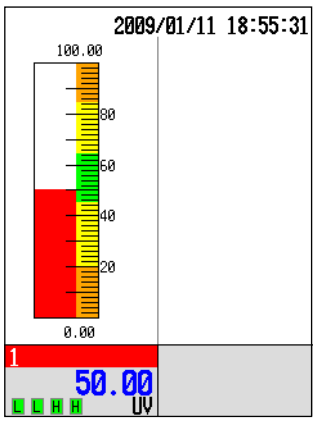
The scales on the bar graph display show not only main scale marks, but also medium scale marks, small scale marks, and scale values. The number of scale divisions is common between the scales on the bar graph and trend displays. For details, see section 5.7 in the DX1000/DX1000N User's Manual (IM04L41B01-01E).

- Regardless of the settings, the number of digits displayed for the scale values is always set to Fine. For details, see section 5.7 in the DX1000/DX1000N User's Manual (IM04L41B01-01E).
- The scale values are the same size as on the trend display's scale.
- Units are not displayed on the scales.
- The scale values on the channels set to Log display are displayed such as "E+01."
- The same color bands or alarm point marks as those on the trend display appear on the scale. With the bar graph display, however, regardless of whether Indicate on Scale is On or Off (see "Setting the Colors of the Color Bands" for details), the color bands or the alarm point marks are displayed.

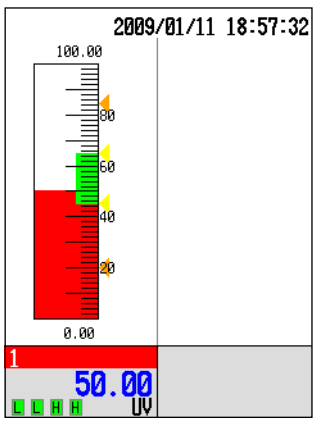
Display Example



Displaying Color Bands



Displaying Alarm Point Marks



Default Values of Setup Items

Default Values of Setting Mode

Date/Time > Date & Time

Setup Item	Default Value
Time set	–

Date/Time > Daylight saving time

Setup Item	Default Value
Use/Not	Not

Meas channel > Range, Alarm

Setup Item	Default Value
First-CH, Last-CH	1
Mode	Volt
Range	2V
Span_L	−2.0000
Span_R	2.0000
Alarm > 1	Off
Alarm > 2	Off
Alarm > 3	Off
Alarm > 4	Off

Meas channel > Tag, Memory, Delay

Setup Item	Default Value
First-CH, Last-CH	1
Tag > Characters	–
Memory sample > On/Off	On
Alarm delay > Time	10 (s)

Meas channel > Moving average

Setup Item	Default Value
First-CH, Last-CH	1
Moving average > On/Off	Off

Meas channel > Color

Setup Item	Default Value
Color > 001	Red
Color > 002	Green
Color > 003	Blue
Color > 004	B.violet

Meas channel > Zone, Scale

Setup Item	Default Value
First-CH, Last-CH	1
Zone > Lower	0 (%)
Zone > Upper	100 (%)
Scale > Position	1
Scale > Division	10

Meas channel > Partial

Setup Item	Default Value
First-CH, Last-CH	1
Partial > On/Off	Off

Meas channel > Alarm mark

Setup Item	Default Value
First-CH, Last-CH	1
Alarm Mark > Mark kind	Alarm
Alarm Mark > Indicate on Scale	Off

Meas channel > Color scale band

Setup Item	Default Value
First-CH, Last-CH	1
Color scale band > Band area	Off

Meas channel > Calibration correction (option /CC1)

Setup Item	Default Value
First-CH, Last-CH	1
Number of set points	Off

Math channel > Expression, Alarm (option /M1)

Setup Item	Default Value
First-CH, Last-CH	101
Math	Off

Math channel > Constant (option /M1)

Setup Item	Default Value
Number of constant	K01
Value	1

Math channel > Tag, Memory, Delay (option /M1)

Setup Item	Default Value
First-CH, Last-CH	101
Tag > Characters	–
Memory sample > On/Off	On
Alarm delay > Time	10 (s)

Math channel > TLOG, Rolling average (option /M1)

Setup Item	Default Value
First-CH, Last-CH	101
TLOG > Timer No.	1
TLOG > Sum scale	Off
TLOG > Reset	Off
Rolling average > On/Off	Off

Math channel > Color (option /M1)

Setup Item	Default Value
Color > 101	Red
Color > 102	Green
Color > 103	Blue
Color > 104	B.violet
Color > 105	Brown
Color > 106	Orange
Color > 107	Y.green
Color > 108	Lightblue
Color > 109	Violet
Color > 110	Gray
Color > 111	Lime
Color > 112	Cyan

Math channel > Zone, Scale (option /M1)

Setup Item	Default Value
First-CH, Last-CH	101
Zone > Lower	0 (%)
Zone > Upper	100 (%)
Scale > Position	1
Scale > Division	10

Math channel > Partial (option /M1)

Setup Item	Default Value
First-CH, Last-CH	101
Partial > On/Off	Off

Math channel > Alarm mark (option /M1)

Setup Item	Default Value
First-CH, Last-CH	101
Alarm Mark > Mark kind	Alarm
Alarm Mark > Indicate on Scale	Off

Math channel > Color scale band (option /M1)

Setup Item	Default Value
First-CH, Last-CH	101
Color scale band > Band area	Off

Math channel > Math start action (option /M1)

Setup Item	Default Value
Math start	Start

Display > Trend/Save interval

Setup Item	Default Value
Trend interval (/div)	1min
Save interval	1h
Second interval (/div)	1min

Display > Trend

Setup Item	Default Value
Direction	Wide
Trend clear	Off
Message direction	Horizontal
Scale > Digit	Normal
Scale > Value indicator	Bargraph
Trend line	2 (dot)
Grid	Auto (div)

Display > LCD

Setup Item	Default Value
Brightness	4
Backlight saver > Mode	Off

Display > Monitor

Setup Item	Default Value
Background > Display	White
Background > Historical trend	Black
Scroll time	10s
Jump default display	Off

Group set, Trip line

Setup Item	Default Value
Group number	1
Group set > On/Off	On (1 to 4 group), Off (5 to 10 group)
Group set > Group name	GROUP 1, etc.
Group set > CH set	001.002.003.004
Trip line > 1	Off
Trip line > 2	Off
Trip line > 3	Off
Trip line > 4	Off

Message

Setup Item	Default Value
Message No. > 1	–
to	–
Message No. > 100	–

Timer, Event action > Timer

Setup Item	Default Value
Timer No.	1
Mode	Off

Timer, Event action > Match time timer

Setup Item	Default Value
Timer number	1
Kind	Off

Timer, Event action > Event action

Setup Item	Default Value
Logic box number	1
Event	None

Data save > File header, File name

Setup Item	Default Value
File header > Characters	–
Data file name > Structure	Date
Data file name > Identified strings	–

Data save > Save directory

Setup Item	Default Value
Directory name	DATA0

Data save > Event data

Setup Item	Default Value
Sample rate	1s
Mode	Free
Data length	1h

Save/Load

Setup Item	Default Value
Load display data	–
Load event data	–
Load settings	–
Save settings	–
File list/delete	–
Format > Volume name	–

Menu customize

Setup Item	Default Value
Function menu	Hide: None
Display menu	Hide: TREND > TREND SPACE INFORMATION > MODBUS CLIENT, RELAY, M.SAMPLE SAVE, REPORT SAVE LOG

Setup Items in Basic Setting Mode and Their Default Values

Alarm > Basic settings

Setup Item	Default Value
Reflash	Off
Rate of change > Decrease	1
Rate of change > Increase	1
Indicator	Nonhold

Alarm > Switch, Relay

Setup Item	Default Value
Internal Switch > AND	None
Relay > AND	None
Relay > Action	Energize
Relay > Hold	Nonhold
Relay > Relay Action on ACK	Normal

Alarm > Hysteresis

Setup Item	Default Value
Meas CH > High/Low	0.5 (%)
Meas CH > Delta High/Low	0.0 (%)
Math CH > High/Low	0.0 (%)

A/D, Memory

Setup Item	Default Value
Scan interval > Scan mode	Normal
Scan interval > Scan interval	125ms
Scan interval > A/D integrate	Auto
Memory > Data kind	Display

Burnout, RJC

Setup Item	Default Value
First-CH, Last-CH	1
Burnout set	Off
RJC > Mode	Internal

Environment > Operating environment

Setup Item	Default Value
Tag/Channel	Tag
Language	English
Remote Controller ID	Off (fixed)
Temperature	C

Environment > View, Message

Setup Item	Default Value
View > Trend type	T-Y (fixed)
View > Partial	Off
View > Trend rate switching	Off
Message > Write group	Common
Message > Power-fail message	Off
Message > Change message	Off

Environment > Input, Alarm

Setup Item	Default Value
Input > Value on over-range	Over
Alarm > No logging	Off

Environment > Security, Media save

Setup Item	Default Value
Security > Key	Off
Security > Communication	Off
Save > Auto save	On
Save > Media FIFO	Off

Environment > Batch

Setup Item	Default Value
On/Off	Off (fixed)

Environment > Service port

Setup Item	Default Value
FTP	21
HTTP	80
SNTP	123
Modbus	502

Environment > Math (option /M1)

Setup Item	Default Value
Value on Error	+Over
Value on Overflow > SUM, AVE	Skip
Value on Overflow > MAX, MIN, P-P	Over

Environment > Report (option /M1)

Setup Item	Default Value
Report select > 1	Ave
Report select > 2	Max
Report select > 3	Min
Report select > 4	Sum
File type	Separate

Environment > Digits, Time indicate

Setup Item	Default Value
Display digits > Digits	2
Time indicate > On/Off	On

Environment > AUX

Setup Item	Default Value
1 (Number of channel display digits of the current value mark)	Off
2 (ON/OFF of **DATE & TIME** on the display menu)	On
3 (Selection alarn point mark display or alarm range color band dispaly)	Off
4 (No function)	Off

Keylock > Password, Key action, Media

Setup Item	Default Value
Password	–
Key action > START	Free
Key action > STOP	Free
Key action > MENU*	Free
Key action > USER	Free
Key action > DISP/ENTER	Free
External media	Free

* For the USB keyboard operation.

Keylock > Action of Function

Setup Item	Default Value
AlarmACK	Free
Message/Batch	Free
Math	Free
Data save	Free
E-mail/FTP	Free
Time set	Free
Display Function	Free

Login > Basic settings

Setup Item	Default Value
Auto logout	Off
Operation without Login	Off

Login > Admin settings

Setup Item	Default Value
Admin number	1
Mode	Off

Login > User settings

Setup Item	Default Value
User number	1
Mode	Off

Login > Authority of user > Key action, Media

Setup Item	Default Value
Authority of user	1
Key action > START	Free
Key action > STOP	Free
Key action > MENU*	Free
Key action > USER	Free
Key action > DISP/ENTER	Free
External media	Free

* For the USB keyboard operation.

Login > Authority of user > Action of Function

Setup Item	Default Value
Authority of user	1
AlarmACK	Free
Message/Batch	Free
Math	Free
Data save	Free
E-mail/FTP	Free
Time set	Free
Display Function	Free

Report > Basic settings

Setup Item	Default Value
Report kind	Off

Report > Report settings

Setup Item	Default Value
Report channel number	R01
Report channel number > On/Off	On (R01 to R04), Off (R05 to R12)
Report channel number > Channel	Varies depending on the report channel number
Report channel number > Sum scale	/s

Time settings

Setup Item	Default Value
Time zone (HHMM)	900
Time deviation limit	30s
Date format	Y/M/D

Load settings, Initialize

Setup Item	Default Value
Load settings	–
Initialize > Kind	Clear 3
Media eject	–

Communication (Ethernet) > IP-address

Setup Item	Default Value
DHCP	Not
Fixed IP-address > IP-address	0.0.0.0
Fixed IP-address > Subnet mask	0.0.0.0
Fixed IP-address > Default gateway	0.0.0.0

Communication (Ethernet) > Host settings

Setup Item	Default Value
Host name	–
Domain name	–

Communication (Ethernet) > DNS settings

Setup Item	Default Value
Server search order > Primary	0.0.0.0
Server search order > Secondary	0.0.0.0
Domain suffix search order > Primary	–
Domain suffix search order > Secondary	–

Communication (Ethernet) > Keep alive, Timeout

Setup Item	Default Value
Keep alive	On
Application time out > On/Off	Off

Communication (Ethernet) > Server

Setup Item	Default Value
FTP	Not
Web	Use
SNTP	Not
Modbus	Not

Communication (Ethernet) > Web page

Setup Item	Default Value
Page type	Operator
Page type > On/Off	Off

Communication (Ethernet) > E-Mail > Basic settings

Setup Item	Default Value
SMTP server name	–
Port number	25
Recipient 1	–
Recipient 2	–
Sender	–

Communication (Ethernet) > E-Mail > Alarm settings

Setup Item	Default Value
Recipient 1	Off
Recipient 2	Off
Active Alarms > Alarm 1	Off
Active Alarms > Alarm 2	Off
Active Alarms > Alarm 3	Off
Active Alarms > Alarm 4	Off
Include INST	Off
Include source URL	Off
Subject	Alarm_summary
Header 1	–
Header 2	–

Communication (Ethernet) > E-Mail > Scheduled settings

Setup Item	Default Value
Recipient 1	Off
Interval	24h
Ref.time	00:00
Recipient 2	Off
Interval	24h
Ref.time	00:00
Include INST	Off
Include source URL	Off
Subject	Periodic_data
Header 1	–
Header 2	–

Communication (Ethernet) > E-Mail > System settings

Setup Item	Default Value
Recipient 1	Off
Recipient 2	Off
Include source URL	Off
Subject	System_warning
Header 1	–
Header 2	–

Communication (Ethernet) > E-mail > Report settings

Setup Item	Default Value
Recipient 1	Off
Recipient 2	Off
Include source URL	Off
Subject	Report_data
Header 1	–
Header 2	–

Communication (Ethernet) > FTP client > FTP transfer file

Setup Item	Default Value
Disp&Event data	Off
Report	Off
Snapshot	Off

Communication (Ethernet) > FTP client > FTP connection

Setup Item	Default Value
FTP connection	Primary
Server name	–
Port number	21
Login name	–
Password	–
Account	–
PASV mode	Off
Initial path	–

Communication (Ethernet) > SNTP client

Setup Item	Default Value
Use/Not	Not

Communication (Ethernet) > Modbus client > Basic settings

Setup Item	Default Value
Read cycle	1s
Retry interval	2min

Communication (Ethernet) > Modbus client > Modbus server settings

Setup Item	Default Value
Server number	1-8
Port	502
Modbus server name	–
Unit	Auto

Communication (Ethernet) > Modbus client > Command settings

Setup Item	Default Value
Client command number	1-8
1	Off
to	Off
16	Off

Status relay (option /F1)

Setup Item	Default Value
Memory/Media status	Off
Measurement error	Off
Communication error	Off
Memory stop	Off

End

Setup Item	Default Value
Do you want to store and make the new settings take effect?	–

Functions of the DAQSTANDARD Software

This section describes the software program, DAQSTANDARD. For an explanation of the settings, see the following manuals.

Contents	Manual Title
Differences between the DXA120/S2 and DXA120	DX364 User's Manual (IM 04L70B01-01E)
Functional explanation and setup operations of the DXA120	DAQSTANDARD Hardware Configurator User's Manual (IM 04L41B01-64EN)

* The DAQSTANDARD software is DXA120/S2.

Differences between the DXA120/S2 and DXA120

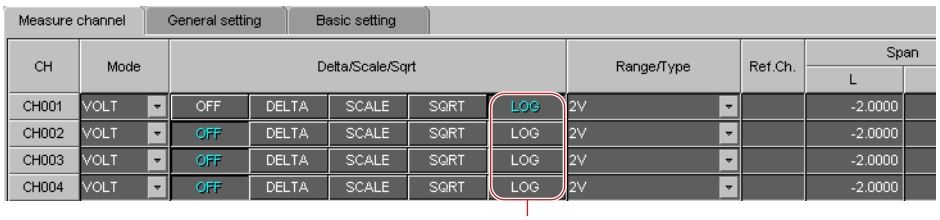
These procedures are carried out using the Hardware Configurator. For a functional explanation, see pages 30 to 39 in this manual.

System Configuration Dialog Box

DX364 is selectable

Setting the Log Display

Carry out the procedure on the **Measure channel** tab screen.

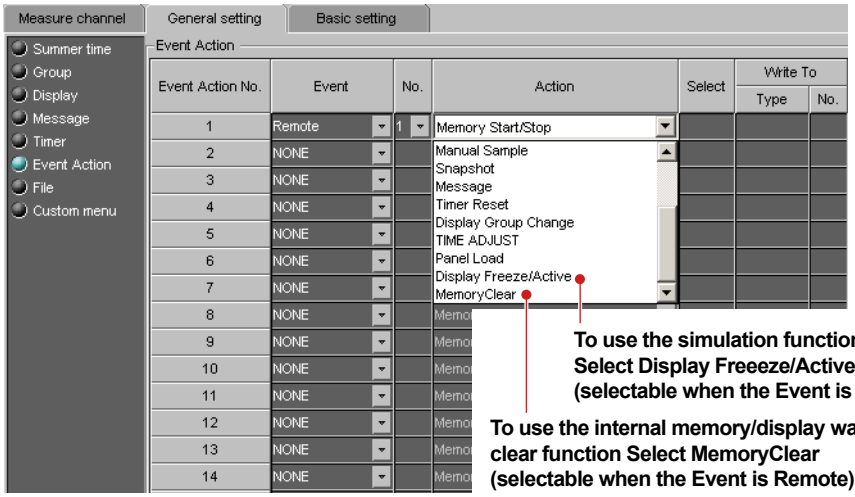


LOG is selectable when the mode is VOLT

Enter the exponent of the scale when LOG is selected

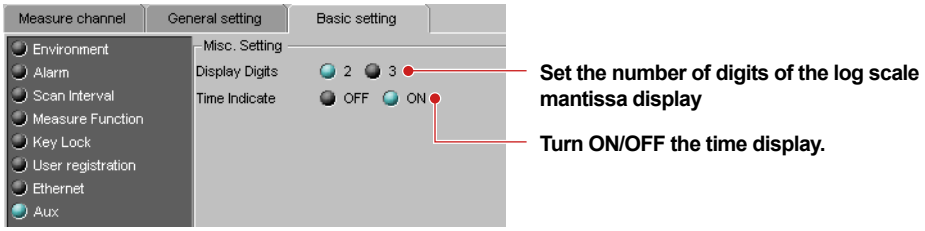
Setting the Simulation Function and Clearing the Internal Memory and Displayed Waveform

Carry out the procedure on the **General setting** tab screen.



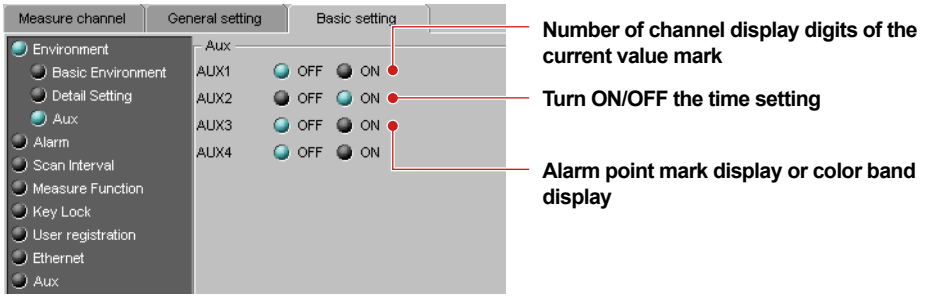
Setting the Number of Digits of the Log Scale Mantissa Display and Turning ON/OFF the Time Display

Carry out the procedure on the **Basic setting** tab screen.



Setting the Number of Channel Display Digits of the Current Value Mark, Turning ON/OFF the Time Setting, or Selecting Alarm Point Mark Display or Color Band Display

Carry out the procedure on the **Basic setting** tab screen.



Setup File Export Function

Outputs the setup data to an Excel file or a tab-separated text file. This function is useful for printing the setting for comparison and confirmation.

Procedure

1. On **File** menu the Hardware Configurator Window, choose **Export** > **Excel...** or **Text...**.
2. Specify the save destination and file name and click the **Save** button.

Operation complete.

Installation and Wiring

Installation Location

Install the DX indoors in a location that meets the following conditions.

- **Instrumentation Panel**
  The DX is designed to be installed in an instrumentation panel.
- **Well-Ventilated Location**
  Install the DX in a well-ventilated location to prevent the temperature inside the instrument from rising. For the panel cut dimensions when arranging multiple DXs, see the page 50. Follow the panel cut dimensions providing adequate space between instruments when other instruments are arranged on the panel.
- **Minimum Mechanical Vibrations**
  Choose an installation location with the minimum mechanical vibration. Installing the DX in a location with large mechanical vibration not only causes adverse effects on the mechanism but also may hinder normal recording.
- **Horizontal**
  Install the DX horizontally (However, the DX can be inclined up to 30 degrees backwards for panel mounting).
- **Ambient temperature range between 0 to 50°C**
- **Ambient humidity between 20 to 80%RH, However, less than moisture content of 40°C 80% RH at 40°C or more, No condensation should be present.**
- **Altitude 2000 m or less**

Note

Condensation may occur if the DX is moved to another place where the ambient temperature is higher, or if the temperature changes rapidly. In addition, measurement errors will result when using thermocouples. If this happens, let the DX adjust to the new environment for at least one hour before using it.

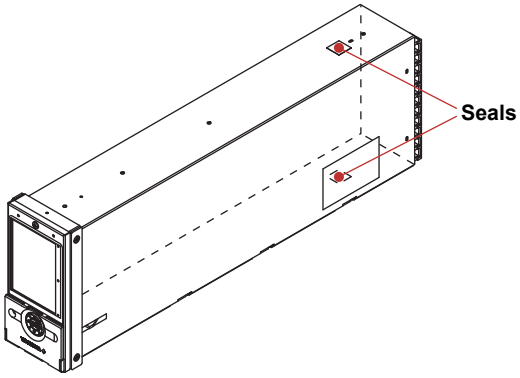
Do not install the DX in the following places.

- **Outdoors**
- **In Direct Sunlight or Near Heat Sources**
  Install the DX in a place with small temperature fluctuations near room temperature (23°C). Placing the DX in direct sunlight or near heat appliances can cause adverse effects on the internal circuitry.
- **Where an Excessive Amount of Soot, Steam, Moisture, Dust, or Corrosive Gases Are Present**
  Soot, steam, moisture, dust, and corrosive gases will adversely affect the DX. Avoid such locations.
- **Near Strong Magnetic Field Sources**
  Do not bring magnets or instruments that produce electromagnetic fields close to the DX. Operating the DX in strong magnetic fields can cause errors in the measurements.
- **Where the Viewing of the Display Is Poor**
  The DX uses a TFT color LCD for the display. Therefore, viewing of the display from an extreme angle is difficult. Install the DX so that the user can view the display from the front.

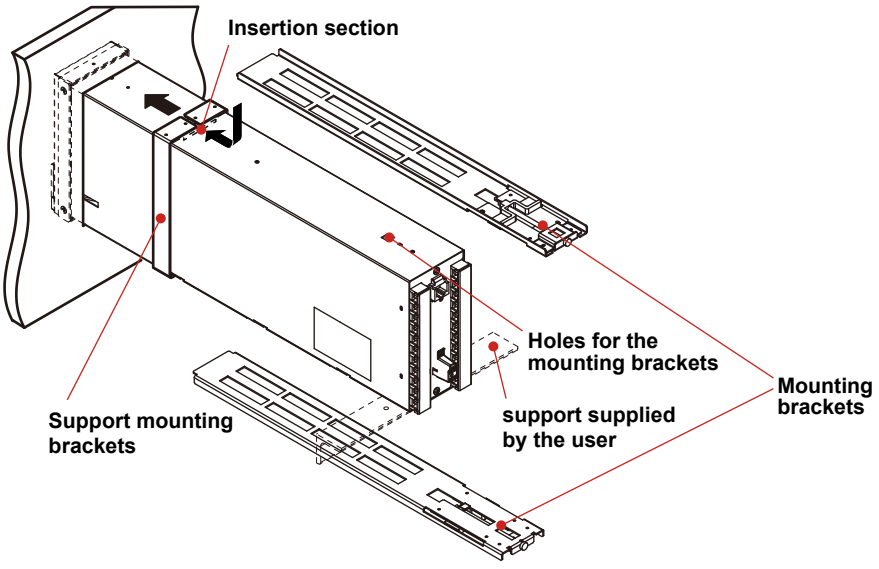
Installation Procedure

Use a steel panel of thickness 2 mm to 26 mm.

1. Remove the seals covering the holes for the mounting brackets on the top and bottom of the case.



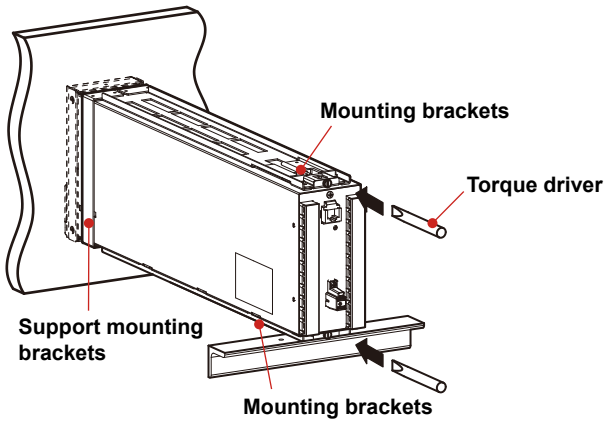
2. Insert the DX from the front of the panel.
3. Pass the support mounting brackets provided from the rear panel through the case all the way up to the panel.
4. Mount the DX on the panel using the mounting brackets provided.
   - Use a mounting bracket on the top and bottom of the case.
   - For mounting, use the insertion section of the support mounting bracket and the holes for the mounting brackets.
   - Attach the mounting bracket for the bottom of the case by lifting the rear section of the case up from the support supplied by the user.
   - The proper torque for tightening the mounting bracket screws is 0.7 to 0.9 N-m.



CAUTION

- Be sure to securely insert the mounting bracket in the insertion section of the support mounting bracket.
- Tightening the screws too much can deform the case or damage the bracket.
- Be careful not to insert foreign objects or tools through the holes for the mounting brackets in the case.

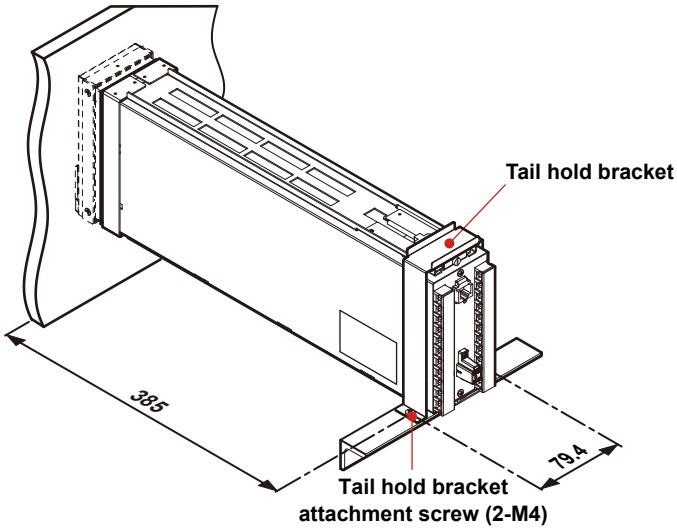
Mounting Bracket Installation Diagram



Single-Unit Mounting

5. Fix the rear section of the case to the support supplied by the user using the tail hold bracket provided. The proper torque for tightening the screw is 1.4 to 1.5 N-m.

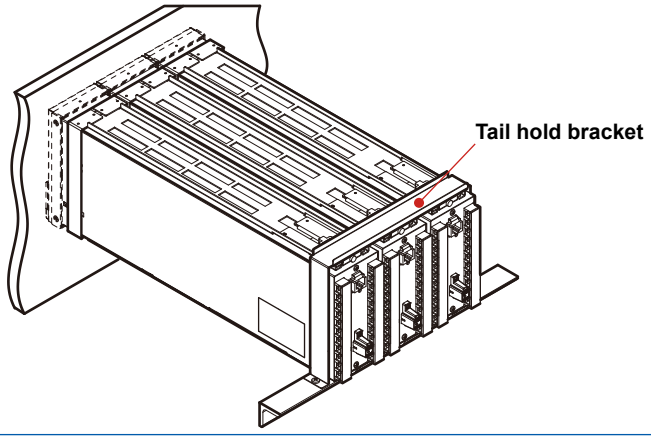
Drill and tap holes for the M4 screws in the support supplied by the user at the positions indicated in the figure below in advance.



Side-by-Side Mounting

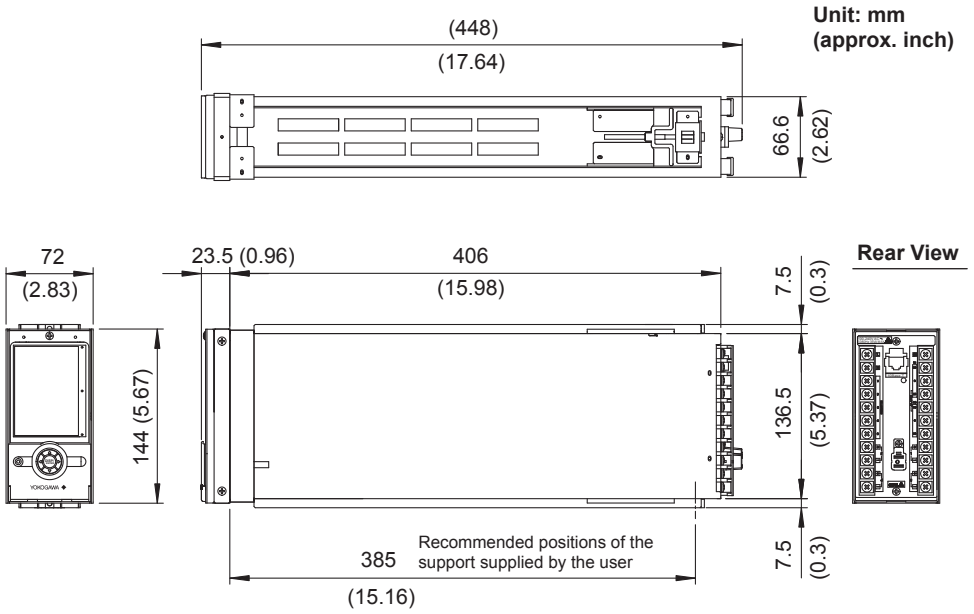
5. Prepare a tail hold bracket with sufficient strength.

6. Fix the rear section of the case to the support supplied by the user using the tail hold bracket. As necessary, insert cushioning material between each case so that the rear section of the case does not wobble.

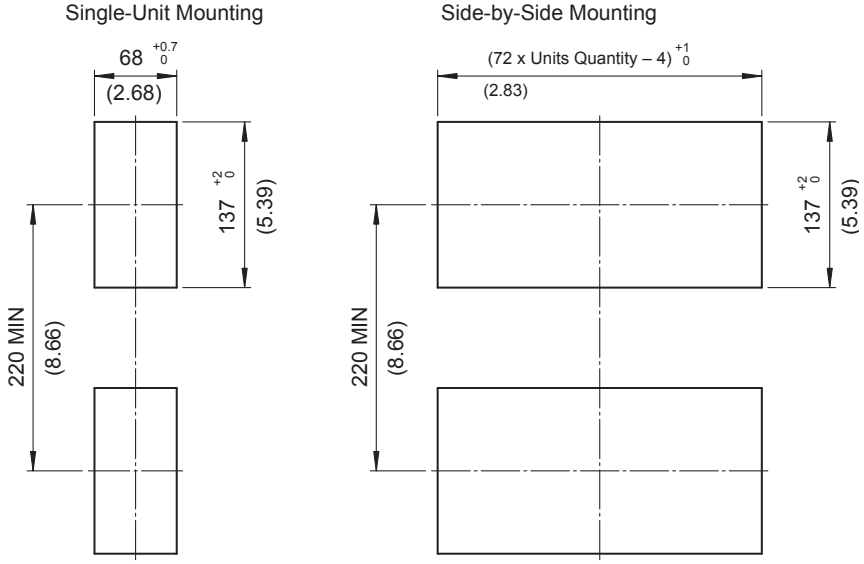


External Dimensions and Panel Cut Dimensions

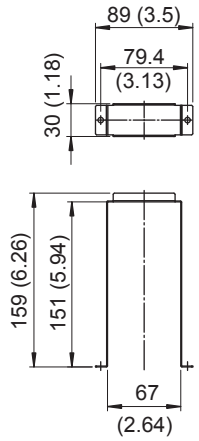
Unit: mm
(approx. inch)



Panel Cut Dimensions



Tail Hold Bracket Dimensions (Standard Accessory)



Unless otherwise specified, tolerance is ±3% (however, tolerance is ±0.3 mm when below 10 mm).

Input Signal Wiring

WARNING

- To prevent electric shock while wiring, ensure that the power supply source is turned OFF.

CAUTION

- If a strong tension is applied to the cable wired to the DX, the terminals of the DX and/or the cable can be damaged. In order to prevent tension from being applied directly on the terminals, fasten all wiring cables to the rear of the mounting panel.
- To prevent fire, use signal wires having a temperature rating of 70°C or more.
- Do not apply a voltage exceeding the following value to the input terminals. Otherwise, damage to the DX may result.
  - Maximum input voltage: ±60 VDC
  - Maximum common mode voltage: ±60 VDC (under measurement category II conditions)

Precautions to Be Taken While Wiring

Take the following precautions when wring the input signal cables.

It is recommended that crimp-on lug with insulation sleeves (designed for 4-mm screws) be used when connecting the input/output signal wires to the terminals.

Crimp-on lug with insulation sleeves (for 4 mm screws)

Separate the conductive section of the measurement circuit wire and the DX case (metal section) by at least 3 mm.

Take measures to prevent noise from entering the measurement circuit.

- Move the measurement circuit away from the power cable (power circuit) and ground circuit.
- It is desirable that the object being measured does not generate noise. However, if this is unavoidable, isolate the measurement circuit from the object. Also, ground the object being measured.
- Shielded wires should be used to minimize noise caused by electrostatic induction. Connect the shield to the ground terminal of the DX as necessary (make sure you are not grounding at two points).
- To minimize noise caused by electromagnetic induction, twist the measurement circuit wires at short, equal intervals.
- Make sure to earth ground the protective ground terminal through minimum resistance (less than 100 Ω).

Do not allow static electricity to be applied to the terminals.

- When wiring the terminals, remove static electricity so that static electricity is not applied.
- If static electricity or similar high-voltage transient noise is applied to the signal line, the system may break.

When using internal reference junction compensation on the thermocouple input, take measures to stabilize the temperature at the input terminal.

- Always use the terminal cover.
- Do not use thick wires which may cause large heat dissipation (cross sectional area of 0.5 mm^2 or less recommended).
- Make sure that the ambient temperature remains reasonably stable. Large temperature fluctuations can occur if a nearby fan turns ON or OFF.

Connecting the input wires in parallel with other devices can cause signal degradation, affecting all connected devices. If you need to make a parallel connection, then

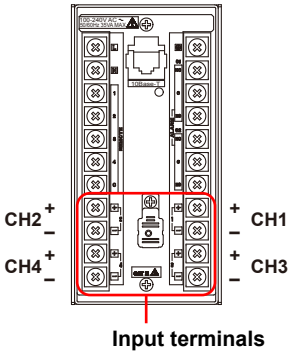
- Turn the burnout detection function OFF.
- Ground the instruments to the same point.
- Do not turn ON or OFF another instrument during operation. This can have adverse effects on the other instruments.

Wiring Procedure

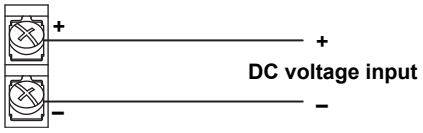
Input terminals are arranged on the rear panel.

1. Remove the terminal cover.
   Remove the terminal cover slowly and gently from the top or bottom edge. Applying a strong force or shock can cause the cover to break or crack.
2. Connect the signal wires to the terminals. The proper torque for tightening the screws is 1.4 to 1.5 N-m.
3. Attach the terminal cover.

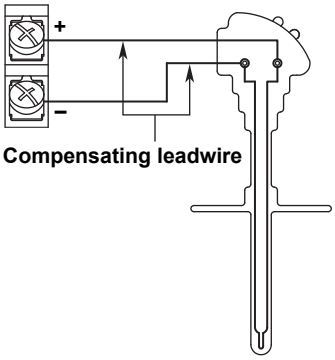
Arrangement of the Input Terminals



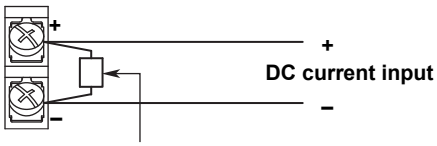
DC voltage input/DI (ON/OFF) input



TC input



DC current input



Shunt resistor
Example: For 4 to 20 mA input, use a shunt resistor of 250 Ω ± 0.1%

Optional Terminal Wiring

WARNING

- To prevent electric shock while wiring, ensure that the power supply source is turned OFF.
- If a voltage of more than 30 VAC or 60 VDC is to be applied to the output terminals, use ring-tongue crimp-on lugs with insulation sleeves on all terminals to prevent the wires from slipping out when the screws become loose. Furthermore, use double-insulated wires (dielectric strength of 3000 VAC or more) for the signal wires on which a voltage of more than 30 VAC or 60 VDC is to be applied. For all other wires, use basic insulated wires (dielectric strength of 1500 VAC). To prevent electric shock, attach the terminal cover after wiring and make sure not to touch the terminals.

CAUTION

- Use the following circuit voltage for the connection to the alarm/FAIL/status output terminal.
  - When the connection is to the main power circuits (primary AC power source circuits): 150 V or less
  - When the connection is to circuits derived from the main power circuits (secondary circuits): 250 V or less
    (The main power circuit voltage is less than 300 V, and connection must be used by isolation transformer.)
- To prevent fire, use signal wires having a temperature rating of 70°C or more.
- If a strong tension is applied to the cable wired to the DX, the terminals of the DX and/or the cable can be damaged. In order to prevent tension from being applied directly on the terminals, fasten all wiring cables to the rear of the mounting panel.

Note

For remote control wiring, use shielded wires to reduce noise. Connect the shield to the ground terminal of the DX.

Precautions to Be Taken While Wiring

It is recommended that crimp-on lug with insulation sleeves (designed for 4-mm screws) be used when connecting wires to the optional input terminals.

Crimp-on lug with insulation sleeves (for 4 mm screws)

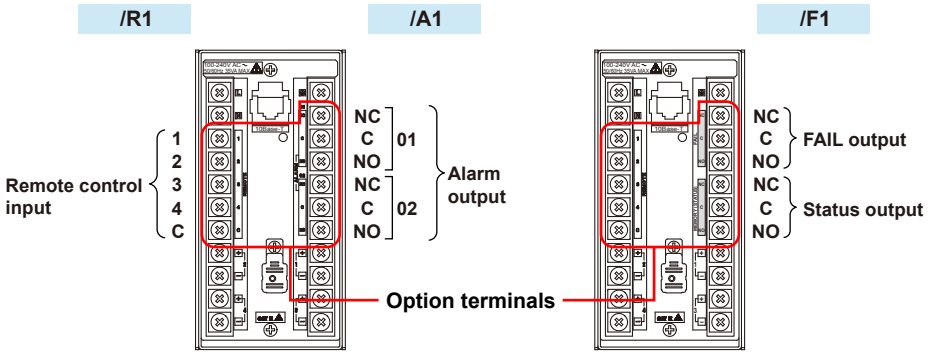
Separate the conductive section of the signal wire and the DX case (metal section) by at least 3 mm.

Wiring Procedure

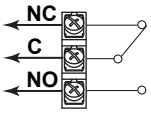
Optional terminals are arranged on the rear panel (see the next page).

1. Remove the terminal cover.
   Remove the terminal cover slowly and gently from the top or bottom edge. Applying a strong force or shock can cause the cover to break or crack.
2. Connect the signal wires to the terminals. The proper torque for tightening the screws is 1.4 to 1.5 N-m.
3. Attach the terminal cover.

Arrangement of the Optional Terminals



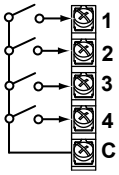
Alarm Output Terminal (/A1) and FAIL Output Terminal/Status Output Terminal (/F1)



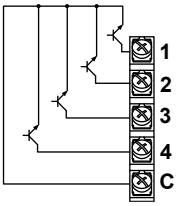
Output format: Relay contact
Contact rating: 250 VAC (50/60 Hz)/3 A, 250 VDC/0.1 A (for resistor load)
Withstand voltage: 1600 VAC at 50/60 Hz for one minute (between output terminals and the ground terminal)

Remote Control Input Terminal (/R1)

- **Relay contact input (voltage-free contact)**
  Contact closed at 200 Ω or less
  Contact open at 100 kΩ or greater

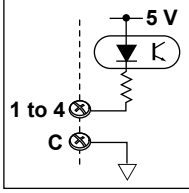


- **Transistor input (open collector)**
  ON voltage: 0.5 V or less (30 mADC)
  Leakage current when turned OFF: 0.25 mA or less



Withstand voltage: 1000 VDC for one minute between input terminals and the ground terminal

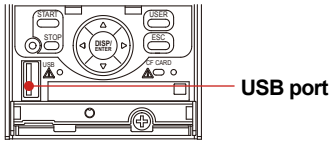
Internal circuit



Input format:
Photocoupler isolation
Shared common (C)
Allowable input voltage:
5 VDC

Connecting to the USB Port

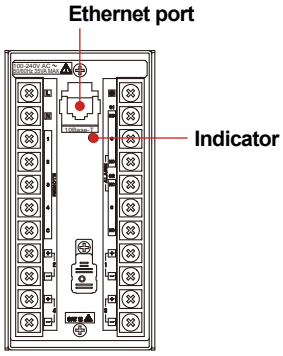
The USB port complies with Rev. 1.1.



Precautions to Be Taken When Connecting the Cable

If you are using the DX in an environment in which noise may enter from the power line, attach parts that reduce or eliminate noise such as a ferrite core to the USB keyboard cable. Noise can cause errors in operation.

Connecting to the Ethernet Port



Precautions to Be Taken When Connecting the Cable

If you are using the DX in an environment in which noise may enter from the power line, take the measures described below. Noise can cause errors in operation.

- Attach parts that reduce or eliminate noise such as a ferrite core to the power line, Ethernet cable, etc.
- Wire the power line as far from the Ethernet cable as possible. Do not bundle the power line and the Ethernet cable.

Checking the Connection/Communication Status

You can check the connection status of the Ethernet interface with the indicator that is located below the Ethernet connector of the DX on the right.

Indicator	Connection Status of the Ethernet Interface
Illuminated (green)	The Ethernet interface is electrically connected.
Off	The Ethernet interface is not electrically connected.

Checking the Connection on the DX Display

- **Checking the Connection at the status indication section of the DX display.**
  You can check the connection status of the Ethernet interface with the **Ethernet Link** indicator at the upper right of the network information screen.
  To display the network information screen, press the **F9 key** on the USB keyboard and use the FUNC key menu.
- **Checking the Connection Status in the Display Section in the Upper Right Corner of the COMMUNICATION LOG Display of the DX**
  You can check the connection status of the Ethernet interface on the **Link** indicator on the display section at the lower right of the COMMUNICATION LOG display.

Indicator	Connection Status of the Ethernet Interface
Illuminated (green)	The Ethernet interface is electrically connected.
Off	The Ethernet interface is not electrically connected.

Power Supply Wiring

Precautions to Be Taken While Wiring the Power Supply

Make sure to follow the warnings below when wiring the power supply. To prevent electric shock and damage to the DX, observe the following warnings.

WARNING

- To prevent electric shock when wiring, ensure the main power supply is turned OFF.
- To prevent the possibility of fire, use 600 V PVC insulated wire (AWG20-16) or an equivalent wire for power wiring.
- Make sure to earth ground the protective earth terminal through a grounding resistance less than 100 Ω before turning ON the power.
- Use crimp-on lug with insulation sleeves (for 4-mm screws) for power supply wires and protective grounding wires.
- Separate the conductive section of the power supply wire from the DX case (metal section) by at least 3 mm.
- To prevent electric shock, be sure to attach the terminal cover.
- For safety, provide a double-pole switch in an easily operable location near the DX to disconnect the DX from the main power supply. Put an indication on this switch as the breaker on the power supply line for the DX and indications of ON and OFF. Switch specifications
  Steady-state current rating: 1 A or more (other than /P1), 3 A or more (/P1).
  Inrush current rating: 60 A or more (other than /P1), 70 A or more (/P1).
  Use a switch complies with IEC60947-1, 3.
- Connect a fuse (between 2 A and 15 A) to the power line. Use a fuse approved by CSA (for the use in North America) or VDE (for the use in Europe).
- Do not add a switch or fuse to the ground line.

CAUTION

- If you are using the DX in an environment in which noise may enter from the power line, take the measures described below. Noise can cause errors in operation.
  - Attach parts that reduce or eliminate noise such as a ferrite core to the power line, USB keyboard cable, Ethernet cable, etc.
  - Wire the power line as far from the Ethernet cable as possible. Do not bundle the power line and the Ethernet cable.
- Before supplying power, check that the power cord and power line are connected correctly to the DX and that the DX is connected to the correct power supply (see the table on the next page).
- If the input wires are connected in parallel with other devices, do not start or stop the power supply of the DX or another device during operation. This can have adverse effects on the measured values.
- Turn ON the power switch, let the DX warm up for at least 30 minutes, and then start the measurements.
- Check that the memory is not being accessed before stopping the power supply.

Use a power supply that meets the following conditions:

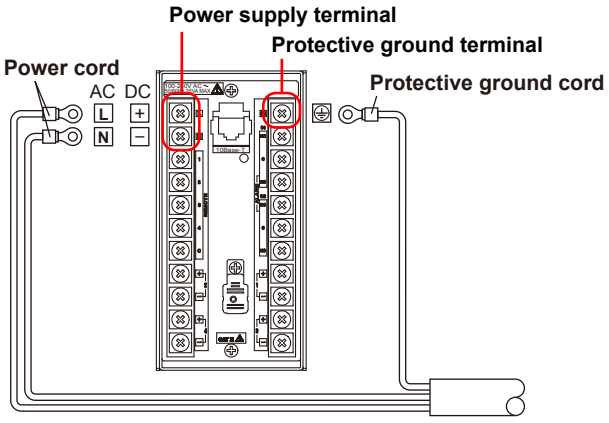
Item	Other than /P1	/P1
Rated supply voltage	100 to 240 VAC	24 VDC/AC
Allowable power supply voltage range	90 to 132/180 to 264 VAC	21.6V to 26.4 VDC/AC
Rated power supply frequency	50/60 Hz	50/60 Hz (for AC)
Allowable power supply frequency range	50/60 Hz ± 2%	50/60 Hz±2% (for AC)
Maximum power consumption	26 VA (100 V)/35 VA (240 V)	13 VA (for DC), 25VA (for AC)

Note

Do not use a supply voltage in the range 132 to 180 VAC, as this may have adverse effects on the measurement accuracy.

Wiring Procedure

1. Turn OFF the power to the DX, and remove the terminal cover.
   Remove the terminal cover slowly and gently from the top or bottom edge. Applying a strong force or shock can cause the cover to break or crack.
2. Wire the power cord and the protective ground cord to the power supply terminals. Use ring-tongue crimp-on lugs (designed for 4 mm screws). The proper torque for tightening the screws is 1.4 to 1.5 N-m.



3. Attach the terminal cover.

Maintenance

Recommended Replacement Periods for Worn Parts

To preserve the reliability of the DX and to use the DX in a good condition for an extended time, it is recommended that periodic replacements be made on parts. The replacement parts may change to accommodate preventive maintenance over extended time. Be sure to check with your nearest YOKOGAWA dealer.
The following table shows the recommended replacement period for expendable parts. The replacement period shown here applies when the DX is used under standard operating conditions. For the actual replacement period, consider the actual conditions of use. Replacement of parts will be carried out by a YOKOGAWA engineer or an engineer certified by YOKOGAWA. Contact your nearest YOKOGAWA dealer when such replacement is necessary.

Item	Replacement Period	Name		Part No.	Quantity Used	Notes
LCD	2 years (for style H: 1) 5 years (for style H: 2 or over)	DX364 LCD ASSY		DX36490	1	Replacement parts for the LCD, backlight, and front panel keys.
Battery	10 years*	BATTERY ASSY		B8802ZK	1	
Aluminum electrolytic capacitor	10 years*	POWER ASSY	AC power supply	B8708GA	1	
			24 V power supply	B8708GB	1	/P1 option
	10 years*	AD & MAIN PBA		B8708RB	1	

* Replacement period at the upper limit of the normal operating temperature (50°C)
The replacement period varies depending on the operating temperature and the specifications of the DX. If the operating temperature is 30°C, you can expect a service life longer than 20 years.

Note

- The LCD replacement period indicates the half life of the brightness when the brightness is set to the factory default setting. The half life is shortened as the brightness is set higher. The deterioration of brightness varies depending on the condition of use, and its determination is subjective. Consider these facts for determining the actual replacement period.
- The color of the LCD may become yellowish as time elapses. The discoloration tends to progress faster as the brightness is set higher.

The LCD (part number: DX36490) was changed to the style “H:2”.
The style “H:2” or over products have the increased brightness and the wider adjustment ranges.

Pulling Out the Inner Instrument

The inner instrument of the DX can be pulled out.
Because some areas inside the DX have high voltages, be sure to pull out the inner instrument correctly. For the procedure, see the *Daqstation DX364 Service Manual (SM 04L70B01-01E)*.