Instruction Manual

701831
DL716 Digital Scope
DC 12 V Drive Model

IM 701830-41E
1st Edition

YOKOGAWA
Yokogawa Electric Corporation

IM 701830-41E
1st Edition

Foreword

Thank you for purchasing the YOKOGAWA DL716 Digital Oscilloscope.
This User's Manual contains useful information about the functions, operating procedures, and handling precautions of DL716 12 VDC power supply model. To ensure correct use, please read this manual thoroughly before operation. For information that is not described in this manual, see the DL716 User' Manual (IM701830-01E) shown below.
Keep this manual in a safe place for quick reference in the event a question arises.
The following four manuals, including this one, are provided as manuals for the DL716. Read them along with this manual.

Manual Name	Manual No.	Description
DL716 User's Manual	IM 701830-01E	Describes all functions (except for the communications function) and their operation procedures for the instrument.
DL716 Communication User's Manual	IM 701830-11E	Describes the communications function for the GP - IB/RS-232 interface.
DL716 Operation Guide	IM 701830-02E	Describes basic operations only.
DL716 12 VDC Model User's Manual	IM 701830-41E	Describes the information about the power supply of the 12-VDC model only.

Notes

- The contents of this manual are subject to change without prior notice as a result of improvements in the instrument's performance and functions. Display contents illustrated in this manual may differ slightly from what actually appears on your screen.
- 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 representative listed on the back cover of this manual.
- Copying or reproduction of all or any part of the contents of this manual without YOKOGAWA's permission is strictly prohibited.

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Revisions

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Disk No. DL24
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Checking the Contents of the Package

Standard Accessories

The following standard accessories are supplied with the instrument. Make sure that all items are present and undamaged.

Power Cord
B9949WC

Connector
A1053JC

*The power code for AC power model is not supplied.

Optional Accessories(Sold Separately)

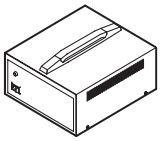
The following optional accessories are available. On receiving these optional accessories, make sure that all the items that you ordered have been supplied and that they are undamaged.

If you have any questions regarding optional accessories, or if you wish to place an order, contact the dealer from whom you purchased the instrument.

Power Cord
B9949WC

Connector
A1053JC

AC-DC Converter
700984



Power Cord for Model 700984 (AC-DC Converter)
B9949WD

Safety Precautions

Make sure to comply with the following safety precautions. Not complying might result in injury, death of personnel or damage to the instrument.
For other precautions that are not described here, see IM701830-01E.

WARNING

Power Supply

Ensure the source voltage matches the voltage of the power supply before turning ON the power.

Do not connect a power supply that outputs a voltage that exceeds 16 VDC to the DC power supply model (701831).

Power Cord and Plug

To prevent an electric shock or fire, be sure to use the power cord supplied by YOKOGAWA. The main power plug must be plugged in an outlet with protective grounding terminal. Do not invalidate protection by using an extension cord without protective grounding.

Protective Earth Grounding

Make sure to connect the protective earth to prevent electric shock before turning ON the power. The power cord that comes with the instrument is a three-pole power cord with an earth wire for both the AC power model and the DC power model. Securely connect the protective earth wire to the earth terminal.

The earth wire should normally be securely connected to the earth. In cases where this is not possible (when driving a car for example), connect the earth wire to the safest possible place (i.e. to the chassis when driving a car).

Connecting the Power Supply

Before connecting the power supply

Follow the warnings below when connecting the power supply. Otherwise, electric shock or damage to the instrument may result.

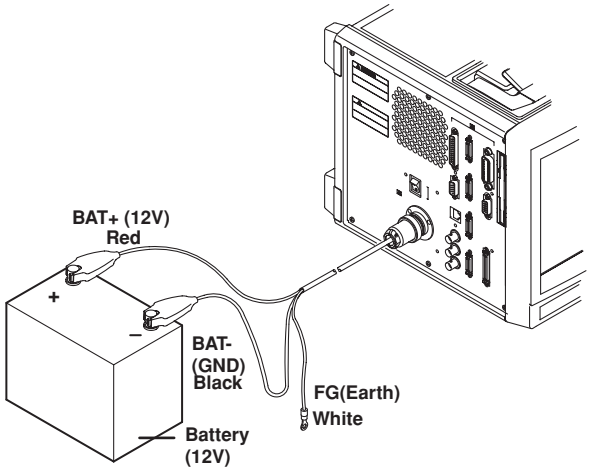
WARNING

- Ensure that the supply voltage matches the rated supply voltage of the instrument before connecting the power cable.
  Do not connect a power supply that outputs a voltage that exceeds 16 VDC.
- When connecting or disconnecting the power cable to the instrument or power supply, make sure to turn OFF the DL716. Connecting or disconnecting the power cable while the power is turned ON is dangerous, because this act causes large currents to flow instantaneously.
- To prevent batteries from shorting, remove the power cable from the battery terminals, if you are not using the batteries.
- To prevent an electric shock or fire, use only power cords supplied by YOKOGAWA for the instrument.
- To prevent an electric shock, make sure to connect the protective earth wire to the earth terminal.
- Do not use an extension cord without protective earth ground. This act will invalidate the protection.

Connecting the Power Cord

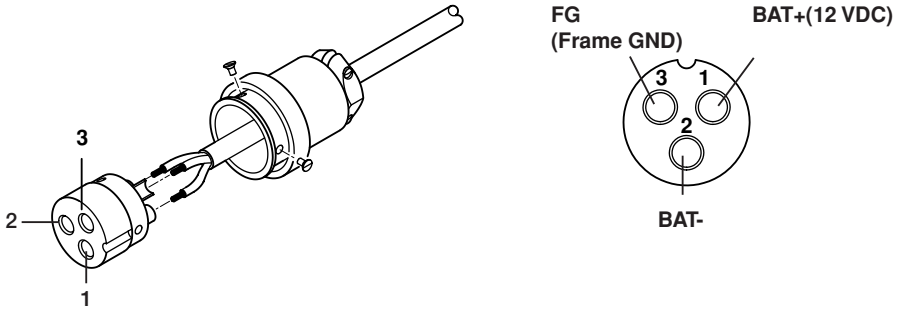
1. Check that the power switch is turned OFF.
2. Connect the power cord plug to the power connector on the left side panel. (Use the power cord that came with the package.)
3. As shown in the figure below, connect the other end of the cable to a power supply that meets the following conditions:

Item	
Rated supply voltage	12 VDC
Permitted supply voltage range	10 to 16 VDC
Maximum power consumption (when using the printer)	250 VA



If you are creating your own DC power cord to match the specification for your environment, use the soldering-type connector that came with the package(1053JC). When creating a power cable, be aware of the following:

- Connect BAT+ (12V) to 12 VDC of the power supply.
- Connect BAT- (GND) to the negative terminal (GND) of the power supply.
- Connect FG (frame ground) to the safest electric potential (protective earth terminal).
- Up to 23 A of current flows through the cable. Therefore, the cable leads should be between AWG12 and 14 (2.5 to 2 mm diameter).
- Allow 10 VDC or more to be supplied to the power input terminal of the instrument.



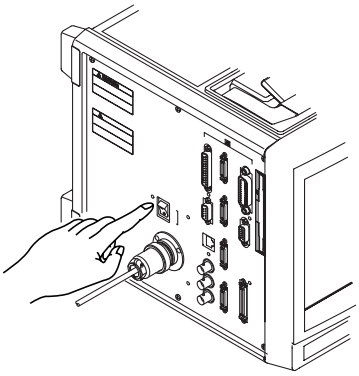
Turning ON/OFF the power switch

Things to check before turning ON the power switch

- Is the instrument properly installed? :
  See section 3.2 "Installing" (page 3-2) in the IM701830-01E.
- Is the power cord properly connected? : See page 4.

Turning ON/OFF the power switch

- Pressing the power switch located on the left side panel to the "ON(I)" side, turns the power ON. Pressing it to the "OFF(O)" side turns the power OFF.



Specifications

Rated supply voltage	12 VDC
Permitted supply voltage range	10 to 16 VDC
Type of power input connector	3-pin connector (HS28R-3 by Hirose)
Power input terminal	BAT+ (12 V), BAT- (GND), FG (earth) Insulation between the power supply (BAT+ and BAT-) and FG
Maximum power consumption	250 VA (when using the printer) 150 VA (when not using the printer)
Withstanding voltage between power supply and earth ground	30 VAC for 1 minute