

User's Manual

Model 700939 FET Probe for DL Series




Thank you for purchasing the FET Probe (Model 700939) for the DL series. To ensure correct use, please read this manual thoroughly before beginning operation. The instrument comes with the following manuals. Please keep them in a safe place.

Manual Title	Manual No	Notes
FET Probe for DL Series User's Manual	IM700939-01E	This manual.
Safety Instruction Manual	IM 00C01C01-01Z1	Safety manual (European languages)
Inquiries	PIM113-01Z2	List of worldwide contacts

Safety Precautions

This product is designed to be used by a person with specialized knowledge. Make sure to comply with the safety precautions mentioned hereafter when handling the probe. YOKOGAWA assumes no responsibility for any consequences resulting from failure to comply with these safety precautions. Also, read the User's Manual of the measuring instrument thoroughly so that you are fully aware of its specifications and handling, before starting to use the probe. This manual is part of the product and contains important information. Store this manual in a safe place close to the instrument so that you can refer to it immediately. Keep this manual until you dispose of the instrument.

General definitions of safety symbols and markings

-  This symbol indicates the risk of injury, death of personnel, or damage to the instrument. Be sure to refer to the corresponding explanation in the User's Manual.
-  Protective grounding terminal.
-  Danger. High voltage.

Make sure to comply with the following safety precautions in order to prevent accidents such as an electric shock which impose serious health risks to the user and damage to the instrument.



WARNING

Grounding of the measuring instrument

The protective grounding terminal of the measuring instrument must be connected to ground.

Ground lead of the probe

Make sure to connect the ground lead of the probe to the grounding potential.

Connecting the object of measurement

Make sure to avoid an electric shock when connecting the probe to the object of measurement. Do not remove the probe from the measuring instrument after the object of measurement is connected.

Do not operate with suspected failures

If you suspect that there is damage to this probe, have it inspect by a service personnel.

Nondestructive input voltage range

Do not apply any voltages exceeding ± 40 V(DC+AC peak) between input and earth.

Must be grounded

Before connecting the input terminal of the probe to the object of measurement ensure that the measuring instrument is properly grounded, that the probe's output connector is attached to the BNC connector of the measuring instrument, and that the ground lead of the probe is properly grounded.

Do not operate without cover

To avoid electric shock or fire hazard, do not operate this probe with the cover removed.

Do not operate in wet/damp conditions

To avoid electric shock, do not operate this probe in wet or damp conditions.

Do not operate in explosive atmosphere

To avoid injury or fire hazard, do not operate this probe in an explosive atmosphere.

Avoid exposed circuitry

To avoid injury, remove jewelry such as rings, watches, and other metallic objects. Do not touch exposed connections and components when power is present.



CAUTION

Nondestructive input voltage range

Do not apply any voltages exceeding the Nondestructive input voltage range to the probe.

Use proper power source

Use the power supply connector for the probe on the DL, DLM, SL, or SB series or use the 701934 power supply. Do not operate this probe from a power source that applies more than the voltage specified.

Terms appear 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

This symbol calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in injury or death of personnel.

CAUTION

This symbol calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part of the product.

Note

Provides information that is important for proper operation of the instrument.

Waste Electrical and Electronic Equipment (WEEE)



(EU WEEE Directive valid only in the EEA* and UK WEEE Regulation in the UK)

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.

* EEA: European Economic Area

UKCA Marking



This product complies with the UKCA (UK Conformity Assessed) marking.

Authorized Representative in the EEA

Yokogawa Europe B.V. is the authorized representative of Yokogawa Test & Measurement Corporation for this product in the EEA. To contact Yokogawa Europe B.V., see the separate list of worldwide contacts, PIM 113-01Z2.

Disposal

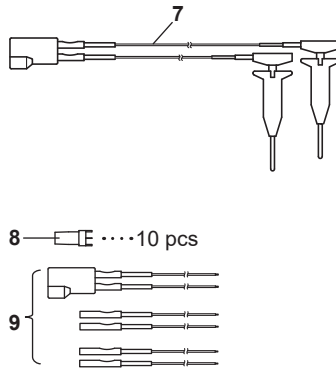
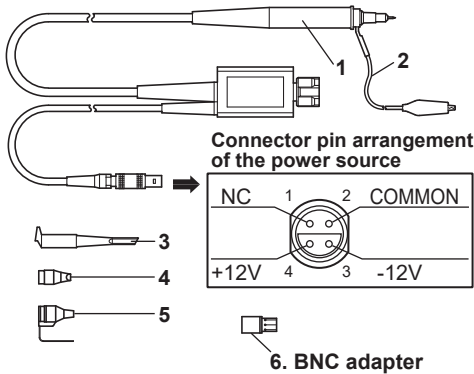
When disposing of YOKOGAWA products, follow the laws and ordinances of the country or region where the product will be disposed of.

1. Description

The model 700939 is an active probe with a frequency bandwidth of 900 MHz and attenuation ratio of 10:1.

2. Appearance

As shown in the following illustration, the probe consists of a main body and standard accessories. Various probe applications are possible, depending on the optional accessories that are separately acquired.



Standard Accessories

Name	Part No.
1 Probe	
2 Ground lead	B9852KL
3 Pincher tip	B9852KJ
4 IC test tip	B9852BF
5 Ground attachment	B9852BG

Optional Accessories (Sold Separately)

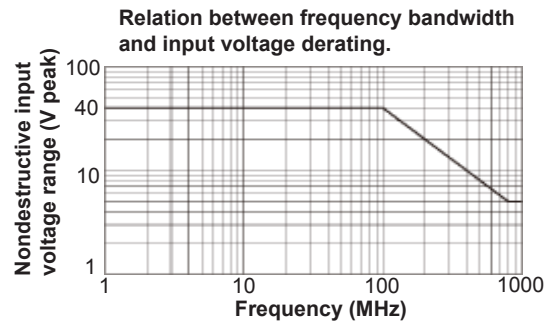
Name	Part No.
6 BNC adapter	700972
7 Mini clip adapter	700971
8 Printed circuit board adapter	366945
9 Solder-in adapter	366946

3. Specifications

Item	Specifications
Frequency bandwidth	DC-900 MHz for probe ¹
Attenuation ratio	10:1 ± 2% when connected to a resistance of 50 Ω ± 1% ¹
Output offset voltage	±2 mV (±20 mV when converted into input terminal) ¹
Input voltage range	10 Vp-p (DC + AC peak should be within ±10 V) ^{1, 2}
Nondestructive input voltage range	±40V (DC + AC peak) ³
Input resistance	Approx. 2.5 MΩ
Input capacity	Approx. 1.8 pF
Total cable length	1.5 m (probe cable), 1 m (power supply cable)
Weight	Approx. 180 g
Ambient operating temperature	5 to 40°C
Ambient operating humidity	20 to 80% RH (no condensation)
Ambient storage temperature	-20 to 60°C
Ambient storage humidity	20 to 80% RH (no condensation)
Power supply voltage	±12 V ± 1V (Usable range: 11 to 13 V or -11 to -13 V)
Power supply current	Current of the power supply terminal is less than 125 mA ²
EMC standards	
Emissions	Complying standard: EN61326-1 Class A EN55011 Class A, Group 1 EMC Regulatory Arrangement in Australia and New Zealand EN55011 Class A, Group 1 Korea Electromagnetic Conformity Standard (한국 전자파적합성기준) • This product is a Class A (for industrial environment) product. Operation of this product in a residential area may cause radiointerference in which case the user is required to correct the interference.
Immunity	Complying standard: EN61326-1 Table 2 (for use in industrial locations) Susceptibility under immunity condition Noise increase ≤ ±200 mV ⁴
Environmental standards ⁵	EU RoHS Directive compliant

- Reference operation conditions: Ambient temperature 23 ± 5°C; Ambient humidity 55 ± 10%; 30 minutes after the power supply is applied.
- When power supply voltage is ±12 V.
- For the relation between frequency bandwidth and input voltage derating see the graph on the right.
- Testing condition: Set 20 MHz for the frequency width and 50 Ω for the input coupling of the Oscilloscope. Terminate the probe tip with 50 Ω. Attach a ferrite core (TDK: ZCAT2035-0930A, YOKOGAWA parts number: A1190MN) on each end of the cable.

- For conformity to environmental regulations and/or standards other than EU, contact your nearest YOKOGAWA office (PIM113-01Z2).



4. Operation

- Connect the power supply probe of the product to the power supply connector of DL, DLM, SL, or SB series or to 701934.
- Simply plug-in the BNC output connector to the vertical input of a oscilloscope. In this case set the input resistance of the oscilloscope to 50 Ω.
- Using the appropriate probe accessories, connect the input to the circuits under measurement.



WARNING

- To protect against electric shock the ground side of the output cable (the shielded side of the BNC connector) must be grounded.
- When disconnecting the BNC connector, always first separate the probe from the high voltage parts of the circuit under measurement.



CAUTION

Use a soft cloth to clean the dirt. Prevent damage to the probe. Avoid immersing the probe. Avoid using abrasive cleaners. Avoid using chemicals contains benzene or similar solvents.

Note

- This device is not specified by any calibration certificate. No test certificate is provided.
- Accurate measurement may not be possible near objects with strong electric fields (like cordless equipment) or strong magnetic fields (like transistors or large current circuits).