

Thank you for purchasing the 100:1 Probe (Model 701947). To ensure correct use, please read this manual thoroughly before beginning operation. After reading the manual, keep it in a convenient location for quick reference whenever a question arises during operation.

Contact information of Yokogawa offices worldwide is provided on the following sheet.

- PIM113-01Z2 List of worldwide contacts

4th Edition: May 2018 (YMI)
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Printed in Japan

YOKOGAWA

IM 701947-01E
4th Edition

The Following Symbols 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 the user's data, and precautions that can be taken to prevent such occurrences.

French

AVERTISSEMENT

Attire l'attention sur des gestes ou des conditions susceptibles de provoquer des blessures graves (voire mortelles), et sur les précautions de sécurité pouvant prévenir de tels accidents.

ATTENTION

Attire l'attention sur des gestes ou des conditions susceptibles de provoquer des blessures légères ou d'endommager l'instrument ou les données de l'utilisateur, et sur les précautions de sécurité susceptibles de prévenir de tels accidents.

Note

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

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.

The following symbols are used on this instrument.



Handle with care. Refer to the user's manual or service manual. This symbol appears on dangerous locations on the instrument which require special instructions for proper handling or use. The same symbol appears in the corresponding place in the manual to identify those instructions.

French



À manipuler délicatement. Toujours se reporter aux manuels d'utilisation et d'entretien. Ce symbole a été apposé aux endroits dangereux de l'instrument pour lesquels des consignes spéciales d'utilisation ou de manipulation ont été émises. Le même symbole apparaît à l'endroit correspondant du manuel pour identifier les consignes qui s'y rapportent.

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

Observe maximum working voltage

When the isolated input measuring instrument's input coupling is AC, DC voltage of the same electric potential as the probe's input is applied to the isolated input measuring instrument's input. Make sure not to exceed the isolated input measuring instrument's maximum input voltage.

Grounding of the measuring instrument

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

Handling of the probe

Do not touch the probe's input terminal or the probe itself with wet hands.

Do not operated with suspected failures

Do not supply any voltages exceeding the maximum input voltage to the probe.

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.

Damaged Signal Cable

If the signal cable is torn and the inner metal is exposed or if a color different from the outer sheath appears, stop using the cable immediately.



CAUTION

Maximum input voltage

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

French



AVERTISSEMENT

Respecter la tension d'entrée maximum

Lorsque le couplage d'entrée de l'instrument de mesure à entrée isolée est en CA, la tension en CC du même potentiel électrique que l'entrée de la sonde est appliquée à l'entrée de l'instrument de mesure à entrée isolée. S'assurer de ne pas dépasser la tension d'entrée maximum de l'instrument de mesure à entrée isolée.

Mise à la terre de l'instrument de mesure

S'assurer de connecter la mise à la terre protectrice de l'instrument de mesure.

Manipulation de la sonde

Ne pas toucher le terminal d'entrée de la sonde ou la sonde elle-même avec des mains mouillées.

Ne pas utiliser en cas de défaillances suspectées

Si vous suspectez que la sonde est endommagée, contactez votre revendeur ou représentant commercial YOKOGAWA.

Ne pas utiliser dans des conditions humides

Afin d'éviter un choc électrique, ne pas utiliser cette sonde dans des conditions humides."

Ne pas utiliser dans une atmosphère explosive

Afin d'éviter des blessures ou d'incendie, ne pas utiliser cette sonde dans une atmosphère explosive.

Éviter les circuits exposés

Afin d'éviter des blessures, retirer les bijoux comme les bagues, montres et autres objets métalliques. Ne pas toucher les connexions et les composants exposés après mise sous tension.

Câble de signal endommagé

Si le câble de signal est déchiré et que le métal intérieur est exposé ou si une couleur différente de la gaine externe est visible, arrêter immédiatement d'utiliser ce câble.



ATTENTION

Tension d'entrée maximum

Ne pas appliquer à la sonde de tension dépassant la tension d'entrée maximum.

Waste Electrical and Electronic Equipment



Waste Electrical and Electronic Equipment (WEEE), Directive

(This directive is valid only in the EU.)

This product complies with the WEEE directive marking requirement. This marking indicates that you must not discard this electrical/electronic product in domestic household waste.

Product Category

With reference to the equipment types in the WEEE directive, this product is classified as a "Monitoring and control instruments" product.

When disposing products in the EU, contact your local Yokogawa Europe B.V. office. Do not dispose in domestic household waste.

Authorized Representative in the EEA

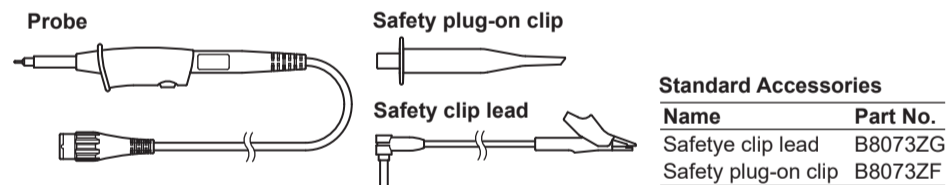
Yokogawa Europe B.V. is the authorized representative of Yokogawa Test & Measurement Corporation for this product in the EEA. To contact Yokogawa Europe B.V., see the separate list of worldwide contacts, PIM 113-01Z2.

1 Description

The 701947 is a 100:1 probe that provides safer, high-voltage measurement when used together with an isolated input measuring instrument (waveform measuring instrument or amplifier). The probe and BNC connector are isolated so that dangerous voltages are not accidentally exposed when the probe is removed from the measurement terminal. Make sure you also fully understand the correct use of the instrument when using the probe.

2 Appearance

This probe is composed of the probe and its accessories.



Note

When storing the probe in the case, please remove the safety clip lead and the safety plug-on clip from the probe and store it.

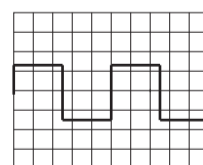
3 Operation

Use adequate attachment suitable for the point to measure.

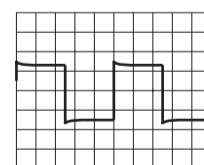
Before using the probe, adjust its capacitance by tuning the trimmer.

Adjustment

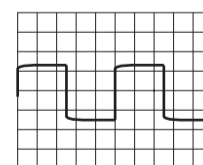
1. Connect the probe connector to the input of the isolated input measuring instrument, and connect the tip of the probe to the CAL or COMP terminal.
2. Change the Time/Div and the V/Div to get the display shown below. And tune the trimmer to get the correct waveform.



Correct Waveform



Over Compensation



Inadequate Compensation



WARNING

- 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.
- When disconnecting the probe BNC output connector, first turn OFF the power to the circuit under measurement. Then, disconnect the probe from the high voltage parts of the circuit under measurement.
- Do not use with the isolated input measuring instrument by manufacturers other than YOKOGAWA.
- EN61010-031 is the safety rating for the probe alone. During actual use, you should adhere to the safety ratings and usage precautions of your measuring instrument. Failure to comply with the correct safety precautions may result in electric shock or damage to the instrument.



CAUTION

- The actual maximum input voltage is limited to the lesser of either the probe's maximum input voltage or the measuring instrument's input voltage.
- See the specifications of the measuring instrument you are using to determine the maximum input voltage.
- Convert the probe's attenuation ratio, and be sure not to input an excessive voltage to the measuring instrument.
- If a voltage exceeding the maximum input voltage or frequency deleting is applied, damage to the instrument may result.
- Use a soft cloth to clean the dirt. Prevent damage to the probe. Avoid immersing the probe, using abrasive cleaners, and using chemicals contains benzene or similar solvents.

French



AVERTISSEMENT

- S'assurer d'éviter un choc électrique lors de la connexion de la sonde à l'objet de la mesure. Ne pas retirer la sonde de l'instrument de mesure après avoir connecté l'objet de la mesure.
- Lors de la déconnexion du connecteur de sortie BNC de la sonde, mettre d'abord HORS tension le circuit faisant l'objet de la mesure. Puis déconnecter la sonde des parties à haute tension du circuit faisant l'objet de la mesure.
- Utiliser avec l'instrument de mesure à entrée isolée qu'avec des fabricants YOKOGAWA.
- EN61010-031 is the safety rating for the probe alone.
During actual use, you should adhere to the safety ratings and usage precautions of your measuring instrument. Failure to comply with the correct safety precautions may result in electric shock or damage to the instrument.



ATTENTION

- La tension d'entrée maximale réelle est limitée à la plus petite des valeurs suivantes: la tension d'entrée maximale de la sonde ou la tension d'entrée de l'instrument de mesure.
- Voir les spécifications de l'instrument de mesure que vous utilisez pour déterminer la tension d'entrée maximale.
- Convertissez le taux d'atténuation de la sonde et veillez à ne pas appliquer de tension excessive à l'instrument de mesure.
- Si une tension supérieure à la tension d'entrée maximale ou à la réduction de la fréquence est appliquée, cela peut endommager l'instrument.
- Utiliser un chiffon doux pour nettoyer la sonde. Faire attention de ne pas casser la sonde. Ne pas immerger la sonde dans un liquide ni utiliser de nettoyants abrasifs sur la sonde. Ne pas utiliser de benzène ni d'autres solvants sur la sonde.

Note

Accurate measurement may not be possible near objects with strong electric fields (such as cordless equipment, transformers, or circuits with large currents).

4 Specifications

Item	Specifications
Total length	1.5 m
Connector type	Isolated BNC
Input impedance/capacitance	100 MΩ ± 2% ¹ / approx. 7 pF
Attenuation ratio	100:1 ± 2% or less
Frequency bandwidth	DC to 200 MHz
Rise time	1.2 ns
Maximum input voltage ²	Space between shield and ground. ±1000 V (DC + AC peak) CAT II ±1000 V (DC + AC peak) CAT I Space between tip and shield, tip and ground. ±1000 V (DC + AC peak) CAT II ±3540 V (DC + AC peak) CAT I
Operating environment	5 to 40°C, 20 to 80% (no condensation)
Storage environment	-10 to 70°C, 20 to 80% (no condensation)
Operating altitude	2000 m or less
Maching input capacitance	Approx. 15 to 45 pF
Safety standards	Complying standards EN61010-031 Measurement category I, II ³ Pollution degree 2 ⁴

1 When the input impedance of the measuring instrument is 1 MΩ ±1%.

2 When the input voltage is AC, the maximum allowable input decreases depending on the frequency as shown by the derating curve in the chart below.

3 This equipment is for measurement category I (CAT I) and category II (CAT II). Do not use it with measurement category III (CAT III), nor measurement category IV (CAT IV). CAT I applies to electrical equipment on a circuit that is not connected directly to the power source and measurement performed on such wiring. CAT II applies to electrical equipment that is powered through a fixed installation such as a wall outlet wired to a distribution board and measurement performed on such wiring. CAT III applies to measurement of the distribution level, that is, building wiring, fixed installations. CAT IV applies to measurement of the primary supply level, that is, overhead lines, cable systems, and so on.

4 Pollution degree applies to the degree of adhesion of a solid, liquid, or gas which deteriorates withstand voltage or surface resistivity. Pollution degree 2 applies to normal indoor atmospheres (with only non-conductive pollution).

