User's Manual

Model 700960
200 MHz Probe
Switchable attenuation ratio of 1/10 and 1/1

Safety Precautions

Make sure to comply with the safety precautions mentioned hereafter when handling the probe.
YOKOGAWA ELECTRIC Co. 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.

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.

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.

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**
  Make sure to connect the protective grounding of the measuring instrument.
- **Earth cable of the probe**
  Make sure to connect the earth cable to the ground (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.
- **Handling of the passive probe**
  Do not touch the probe's input terminal or the probe itself with wet hands.
- **Do not operate with suspected failures**
  If you suspect that there is damage to this probe, contact your nearest Yokogawa dealer or sales representative.
- **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.
- Make sure not to exceed the oscilloscope's maximum input voltage in the following cases:
  When the probe attenuation ratio is 1:1
  When the oscilloscope's input coupling is AC
  DC voltage of the same electric potential as the probe's input is applied to the oscilloscope's input.

⚠ **CAUTION**

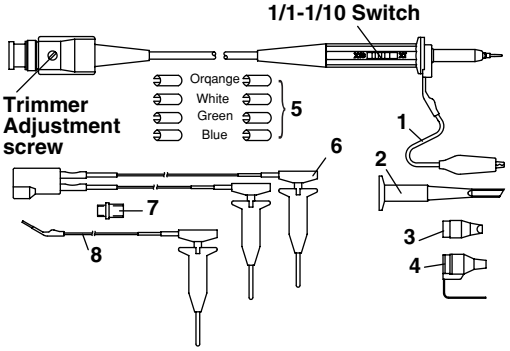
Maximum input voltage
Do not supply any voltages exceeding the maximum input voltage to the probe.

Abstract

The model 700960 is a 1 MΩ passive probe with switchable attenuation ratio of 1/10 and 1/1.

Composition

This probe is composed of the probe and its accessories. Optional accessories are available to meet various applications.



Standard Accessory

	Name	PartNo.
1	Ground lead	B9852CW
2	Pinchers tip	B9852CX
3	IC test tip	B9852CY
4	Ground attachment	B9852CZ
5	Marker tip	B9852DH

Optional Accessory

	Name	Model
6	Miniclip converter	B9852CR
7	BNC adapter	B9852CS
8	Ground lead	B9852CT

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IM 700960-01E
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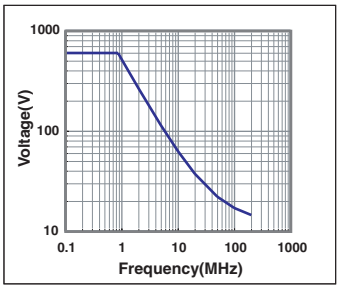
Specifications

Item	Specifications	Conditions
Probe length	1.5m	
Connector type	BNC	
Input resistance*	10MΩ ±2%	In conjunction with an oscilloscope with an input impedance of 1MΩ ±1%.
Matching Input Capacity(at 1/10)	Approx. 14 pF to 30 pF	Oscilloscope measurement input capacity
Input capacitance		
At attenuation ratio of 1/10:	Approx. 14 pF	In conjunction with an oscilloscope with an input impedance of 1MΩ ±1%.
At attenuation ratio of 1/1:	150 pF max.	Probe only
Attenuation ratio*	1/10 ±2%	In conjunction with an oscilloscope with an input impedance of 1MΩ ±1%.
Bandwidth		
At attenuation ratio of 1/10:	200MHz (–3 dB or less)	Subject to change depending on type of oscilloscope used.
At attenuation ratio of 1/1:	DC to 6MHz (–3 dB or less, typical**)	Subject to change depending on type of oscilloscope used and measurement conditions.
Rise time		
At attenuation ratio of 1/10:	1.8 ns max.	Subject to change depending on type of oscilloscope used.
At attenuation ratio of 1/1:	58 ns max. (typical**)	Subject to change depending on type of oscilloscope used and measurement conditions.
Max input voltage***	600V(DC+AC peak) or 424 Vrms	Frequency of the AC needs to be less than 100kHz.
Operating environment		
Temperature range	5 °C to 40 °C	
Humidity range	20 to 80%RH	
Storage environment		
Temperature range	20 °C to 60 °C	
Humidity range	20 to 80%RH	
Operating altitude	2,000 m or less	

* : In case of selecting the attenuation as 1/10.
** : Typical (or average) value; not guaranteed.
*** : In case of selecting the attenuation as 1/10. The maximum allowable input decreases depending on the frequency. Refer to the deleting curve

Max Input Voltage deleting curve



Complied Standard

This product is compliance with the following categories of IEC61010-031:

Measurement Category II	600 V(DC+ACpeak)
Pollution Degree 2	Normally, only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected.

Definitions and Examples of IEC Measurement Category
Measurement category II(CAT II)

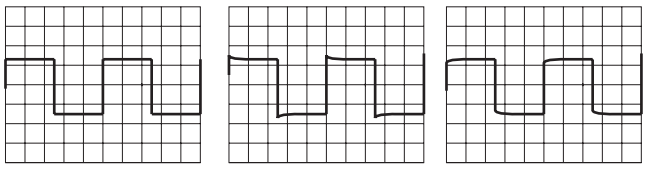
Definition:	Measurement category II is for measurements performed on circuits directly connected to the low voltage installation.
Examples:	Measurement on household appliances, portable tools, and similar devices.

Usage

Use adequate attachment suitable for the point to measure.
Before using the probe with attenuation ratio of 1/10, adjust its capacitance by tuning the trimmer.
The attenuation can be selected using the 1/1-1/10 switch.
Make sure the maximum input voltage of oscilloscope when the attenuation is selected as 1/1.

Adjustment

1 Connect the probe connector to the input of the oscilloscope, and connect the tip of the probe to the CAL signal output 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**

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