FLUKE®

90i-610s

Automotive AC/DC Current Probe

Current Probe for Fluke ScopeMeter® Test Tools and Automotive DMMs

Technical Data

Current measurements can be very critical when troubleshooting electronic and automotive circuits. The Fluke 90i-610s AC/DC Current Probe is designed to provide you with safe, accurate measurements for a wide range of automotive applications.

Using the 90i-610s Current Probe gives you several advantages. First of all you don't have to disconnect your wiring, with all the risks that involves, to connect a current measurement test tool in series with the wiring. Another advantage is that the Current Probe can be used as an additional accessory for your DMM or ScopeMeter test tool to enable non-contact current measurements.

In combination with ScopeMeter® Test Tool

In combination with a Fluke ScopeMeter test tool, the 90i-610s can be used to represent waveforms on your display. Studying this behavior will tell you if your system or component is functioning properly.

Within the automotive environment, the following current measurements are related to systems and components:

Charging System
Alternator
Regulator
Starting System
Battery
Starter
Electrical System
Wiring
Connections
Current drain faults

The 90i-610s accurately reproduces current waveforms as they occur, within its specification range. Some specific measurements which can be performed are Starting Current and Alternator Ripple Current.

When investigating the Starting Current, the technician judges if the battery, starter motor and connections are functioning properly. This is done to find the cause of a problem or for preventive maintenance. Bad connections can cause all kinds of annoying and often hard-to-find problems in the vehicle's electronic system and wiring.

In combination with DMMs

Some of the measurements which can be made using a DMM include Starting Current, Charging Current or Field Current.

Current drains, shorts and bad grounds are the causes of many problems. Locating these current drains can be a difficult task, especially if the technician has to disconnect wiring or fuses to find the cause of the problem.

FLUKE ®

Disconnecting and reconnecting the wiring could also mean that the problem will not show up immediately, so that the customer comes back with the same complaint after a few days. The 90i-610s will help you to find it much more easily, without the need to disconnect the wiring or fuses, by measuring directly at the suspected component or connector.

Measurement ranges
Measurements from 0-600A can be selected by means of a switch. There are two ranges, from 0-100A and from 0-600A, with a best accuracy of 2% of reading ±1A.

Compatibility
The 90i-610s is designed to be used for automotive applications. It is available as an optional accessory for the Fluke ScopeMeter test tool, as well as for the Fluke 78 and Fluke 88 Automotive DMMs and other DMMs used for automotive applications.

Technical specifications

Electrical Specifications

Current Ranges:
0 to 100A dc or ac peak
0 to 600A dc or ac peak

Output Signals:
100A range: 10 mV/A
600A range: 1 mV/A

Working Voltage (Clamp jaws to Ground):
600V ac rms on Installation Category II per IEC 1010-1 circuits.
300V ac rms on Installation Category III per IEC 1010-1 circuits.

Floating Voltage (Output Cable and Connector to Ground):
30V ac rms (42V pk max)

Accuracy:

Input Current	Error (after zero check)	
(DC or AC peak)	10 mV/A (100A range)	1 mV/A (600A range)
0 to 100A	±2% of reading ±1A	±3.5% of reading _3A
100 to 400A	-	±2.0% of reading ±2A
400 to 600A	-	±3.0% of reading ±2A

Maximum Non-destructive Current:
800A peak

Input Load Impedance (of host instrument)
>1 MΩ in parallel with up to 100 pF

Useful Bandwidth
DC and 40 to 400 Hz

Distortion Factor
Position error conductor in the window: ±1.0% of reading from one extreme of the enclosure to the other.

Temperature Coefficient:
0.2 * accuracy/°C max. for temperature T<18 °C and T>28 °C (T<64 °F and T>82 °F)

All Electrical Specifications are valid at a temperature of 23 °C ± 5 °C (73 °F ± 9 °F)

General Specifications

Dimensions:
73 x 215 x 27 mm (2.9 x 8.4 x 1.1 inches)

Weight:
400g (14 oz.), battery included

Output Cable:
1.6 meters (63 inches), heat resistant silicon insulated

Maximum Conductor Size:
34 mm (1.34 inch) diameter or 20*40 mm (.78 * 1.57 inches)

Maximum Jaw Opening:
38 mm (1.5 inch) diameter

Temperature:
Operating: 0 to 50 °C (32 to 122 °F), max humidity 75%
Nonoperating: -20 to 60 °C (-4 to 140 °F), max. humidity 80%

Altitude:
Operating: 0 to 2000 meters (0 to 6500 feet)
Non-operating: 0 to 12000 meters (0 to 40000 feet)

Safety Specifications

Meets the requirements of IEC 1010:
Installation Category II, Working Voltage 600V, Pollution Degree 2,
Installation Category III, Working Voltage 300V, Pollution Degree 2.

Installation (Overvoltage) Category II refers to local level appliances, and portable equipment. Installation (Overvoltage) Category III refers to distribution level and fixed installation circuits inside a building.
Meets the requirements of UL1244, Protection Class II Double Insulation.

Battery Information

Battery:
9 volt, IEC 6LR61

Service Life:
60 hours typical, with IEC 6LR61 alkaline battery
40 hours minimum, with IEC 6LR61 alkaline battery

Battery Indicator:
Red LED lights when battery voltage is low

Power Indicator:
Green LED flashes when power is on

Auto Power Off:
After 30 minutes

To Demagnetize Probe:
Open and close the probe jaws several times

Instrument Compatibility

The 90i-610s is compatible with all Fluke Automotive ScopeMeter test tools, and with other automotive voltage measurement devices that have the following features:
- BNC or banana input connector. (Use the BNC-to-Banana Adapter with standard inputs on an Automotive Meter.)
- Input impedance greater than or equal to 1 MΩ in parallel with a maximum of 100 pF.

Warranty

One-year warranty

Ordering Information

90i-610s AC/DC Current Probe

Fluke Corporation
P.O. Box 9090, Everett, WA USA 98206

Fluke Europe B.V.
P.O. Box 1186, 5602 BD Eindhoven
The Netherlands

For more information call:
In the U.S.A. (800) 443-5853 or fax (206) 446-5116
In Europe (31 40) 2 675 200 or fax (31 40) 2 675 222
In Canada (905) 890-7600 or fax (905) 890-6866
From other countries +1 (206) 446-5500 or fax +1 (206) 446-5116

© Copyright 1996 Fluke Corporation. All rights reserved.
ScopeMeter is a registered trademark of Fluke Corporation.
Specifications subject to change without notice.
Printed in the Netherlands 02/02
Pub_ID: 10053-eng
Rev. 1