
OPERATING INSTRUCTIONS

SAFETY PRECAUTIONS

WARNING


The following precautions must be observed to help prevent electric shock.

1. When the oscilloscope is used to make measurements in equipment that contains high voltage, there is always a certain amount of danger from electrical shock. The person using the oscilloscope in such conditions should be a qualified electronics technician or otherwise trained and qualified to work in such circumstances. Observe the TEST INSTRUMENT SAFETY recommendations listed on the inside front cover of this manual.
2. Do not operate this oscilloscope with the case removed unless you are a qualified service technician. High voltage up to 2100 volts is present when the unit is operating with the case removed.
3. The ground wire of the 3-wire ac power plug places the chassis and housing of the oscilloscope at earth ground. Use only a 3-wire outlet, and do not attempt to defeat the ground wire connection or float the oscilloscope; to do so may pose a great safety hazard.
4. Special precautions are required to measure or observe line voltage waveforms with any oscilloscope. Use the following procedure:
 - a. Do not connect the ground clip of the probe to either side of the line. The clip is already at earth ground and touching it to the hot side of the line cause possible injury, plus possible damage to the scope or probe.
 - b. Insert the probe tip into one side of the line voltage receptacle, then the other. One side of the receptacle should be "hot" and produce the wave from. The other side of the receptacle is the ac return and nowaveform should result.

EQUIPMENT PROTECTION PRECAUTIONS

CAUTION

The following precautions will help avoid damage to the oscilloscope.

1. Never allow a small spot of high brilliance to remain stationary on the screen for more than a few seconds. The screen may become permanently burned. A spot will occur when the scope is set up for X-Y operation and no signal is applied. Either reduce the intensity so the spot is barely visible, apply signal, or switch back to normal sweep operation. It is also advisable to use low intensity with AUTO triggering and no signal applied for long periods. A high intensity trace at the same position could cause a line to become permanently burned onto the screen.
2. Do not obstruct the ventilating holes in the case, as this will increase the scope's internal temperature.
3. Excessive voltage applied to the input jacks may damage the oscilloscope. The maximum ratings of the inputs are as follows:


CH 1 and CH 2:
400 V dc + ac peak.
EXT TRIG:
300 V dc + ac peak.
4. Always connect a cable from the ground terminal of the oscilloscope to the chassis of the equipment under test. Without this precaution, the entire current for the equipment under test may be drawn through the probe clip leads under certain circumstances. Such conditions could also pose a safety hazard, which the ground cable will prevent.
5. The probe ground clips are at oscilloscope and earth ground and should be connected only to the earth ground or isolated common of the equipment under test. To measure with respect to any point other than the common, use CH 2 - CH 1 subtract operation (**ADD** mode and **INV 1**), with the channel 2 probe to the point of measurement and the channel 1 probe to the point of reference. Use this method even if the reference point is a DC voltage with no signal.