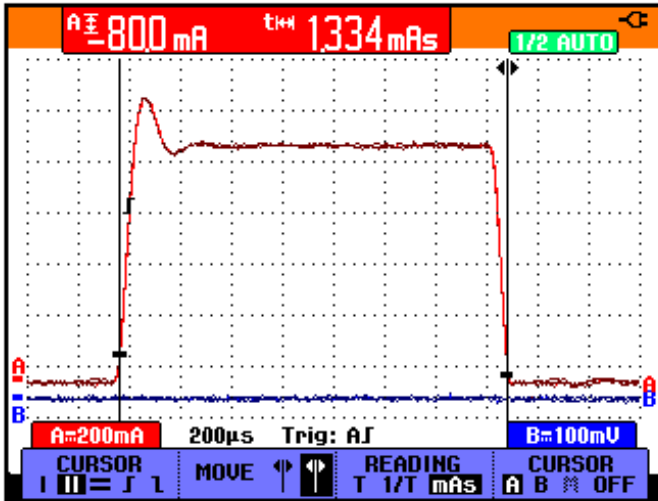


# Fluke 190 Series Medical ScopeMeter® Features & Specifications

## Fluke 190 Series Medical ScopeMeter® Features

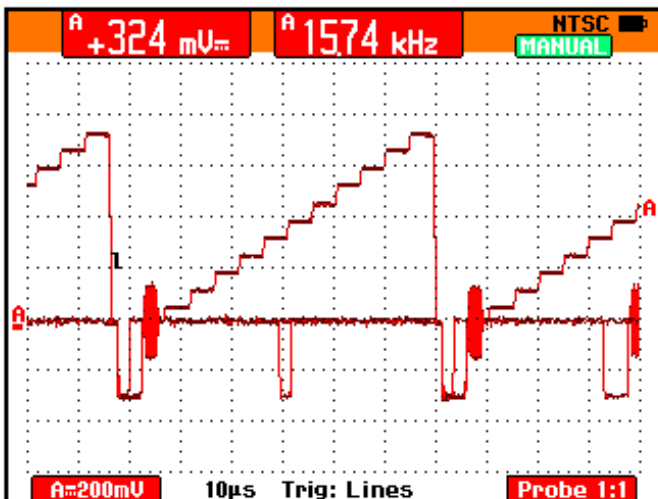
### mAs Measurement Calculates Current Over Time

Using the cursors, you can now measure directly the amount of radiation produced by X-ray systems, or the total amount of charge applied to a system.



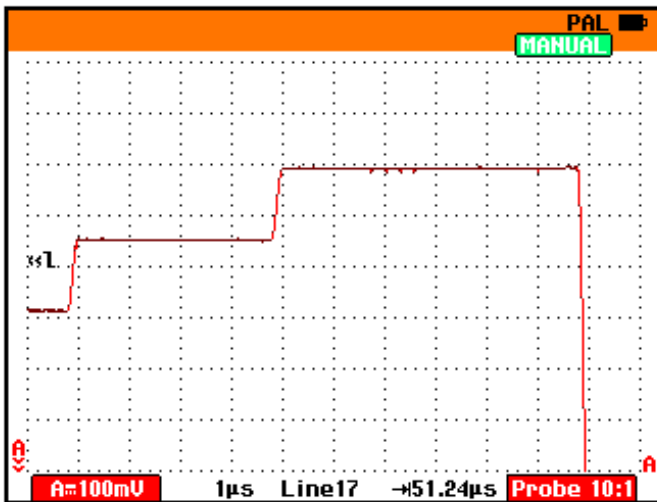
### Smart Averaging

Smart averaging gives the averaged waveform over successive acquisitions, reducing noise in the displayed waveform. Thanks to smart averaging, you can now also see an incidental curve of a different waveshape with no effect on the averaged curve! This allows you to see the averaged curve of a sequence of video lines, for example, while still seeing the incidental flyback line flash by! Thanks to smart averaging, the oscilloscope gives an immediate response when the signal makes large changes, for instance when probing around different test points, while retaining the benefits associated with averaging!



## Extended Offset

Vertical offset is now extended to a maximum of 16 divisions, allowing vertical zoom-in for study of small details of the signal.



## Selectable Persistence

Persistence mode with selectable decay time helps to find anomalies in the waveshape and optimizes the display for color information when working with composite color video. Can be used together with dots only mode, best for modulated signals, or with dot join mode for more continuous and stable waveshapes.

## Extended Video Triggering

Next to its triggering capability for standard, interlaced TV signals, the instrument now triggers on high-resolution, non-interlaced video systems. The ScopeMeter 190 will trigger on all lines (non-selective), or can select an individual video line from systems with up to 2800 lines per frame.

## MA190 Accessory Kit

The MA190 accessory set enables interconnection of the Fluke 190 for use in the field of Medical Imaging and Video systems. The kit is included in the Fluke 190M as a standard.

The accessory kit includes:

- 50 ohm BNC feedthrough terminator, in insulated enclosure, to maintain proper termination of test connections during measurement.
- 50 ohm BNC terminator with 10:1 signal attenuation; keeps test terminal properly loaded while getting optimum signal amplitude to benefit from the instrument's extended offset range.
- 1 ohm current shunt for current measurements, in insulated enclosure.
- safety-designed BNC cable, 1.5 m (5 ft), with plastic connectors for safe connection to test terminals even when not at ground potential.
- insulated BNC(f) to 4 mm banana plug adapter.
- dual 4 mm banana receptacles (1 red, 1 black).



## Fluke 190 Series Medical ScopeMeter® Specifications

For instruments that have the MS190 Software Extension installed, the full specification for the [Fluke ScopeMeter 190 Series](#) applies, with the additions as specified below.

<b>Oscilloscope Mode</b>	
<b>Display and acquisition</b>	<p><b>Channels displayed:</b> input A, input B, dual channel</p> <p><b>Display modes:</b> smart averaging, normal averaging, selectable persistence, invert, replay Smart averaging displays averaged curve; incidental waveforms that differ too much from the average curve are displayed but do not contribute to the averaged curve</p> <p><b>Averaging factor:</b> selectable: 2x, 4x, 8x, 64x or off</p> <p><b>Selectable persistence decay time:</b> short, medium, infinite or off; can be used with dots only display or with dot join mode</p>
<b>Trigger and delay - Video Triggering</b>	<p><b>Interlaced video:</b> NTSC, PAL, PALplus, SECAM. Selects field 1, field 2, lines or on user selected line from a frame</p> <p><b>Non-interlaced video:</b> for line counts up to 2800 lines per frame and video scan rates up to 65 kHz; triggers on fields, on lines or on user-selected line</p>
<b>Cursor measurements</b>	<b>Dual vertical lines:</b> time between cursors, voltage between markers, 1/T (in Hz), mVs, mAs
<b>Zoom</b>	<p><b>Horizontal zoom:</b> Up to 8x</p> <p><b>Vertical zoom:</b> using position control (offset) and vertical sensitivity</p>
<b>Offset range</b>	<p><b>Max. offset for viewing positive-going signals:</b> 16 divisions for input sensitivity settings 5...50 mV/div (50...500 mV/div. when using 10:1 probe or TA190-50R); 8 divisions for all other vertical sensitivity settings</p> <p><b>Max sensitivity of Fluke 190CM:</b> 2mV/div (20mV/div. using attenuator)</p> <p><b>Max. offset for viewing negative-going signals:</b> 8 divisions for all vertical sensitivity settings</p>