

Using a Dranetz 658
on Stray Voltage
Investigations

The Dranetz 658 is
NOT designed for
cow contact
measurements

Phase
to
Phase
voltage or current

Phase
to
Neutral
voltage or current

Neutral
to
ground
voltage or current

Steady-state
Sensitivity

Steady-state
Sensitivity
0.1 to 72.4
volts AC RMS

A change in
Steady-State
value

Change in Steady-State
value

0.1 to 72.4
volts AC RMS

Impulse
Sensitivity

Impulse sensitivity
2.4 to 612 volts
AC RMS

Current
Sensitivity
Not useful for cow
contact measurements

Basis Tests on Any Stray Voltage Meter


1. Input Impedance Test
2. DC Blocking Test
3. Floating Zero
4. Steady-state Voltage Resolution
5. Impulse Voltage Measurements
6. Impulse Voltage Resolution
7. Waveform Display Resolution

Input Impedance Test

“Cow Resistor” required

DC Blocking Test

Unit fails this test



Chan. A
RMS: 1.7V

The image shows a digital display from an oscilloscope or similar measurement device. The text is yellow on a black background. The value '1.7V' is circled in red, indicating a failure. The display also shows 'Chan. A' and 'RMS:'.

Floating Zero Test

Unit fails this test



Dranetz 658

Status as of 10/2

Chan.	A	
RMS:	0.1V	0.0V

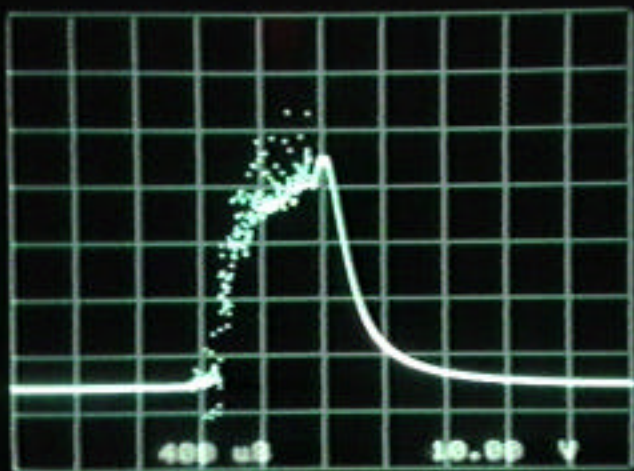
Monitoring: On

C	D
2V	0.4V

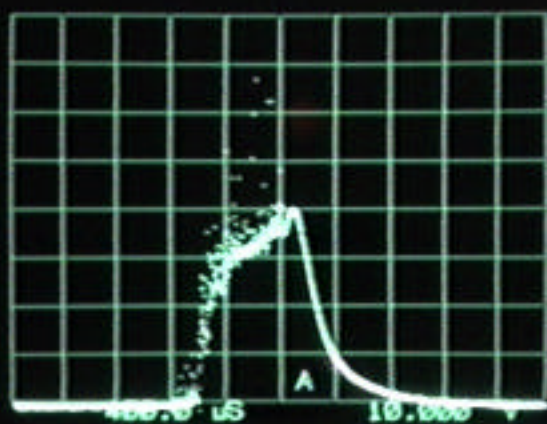
(5% 5.11)

Steady-state
Voltage
Resolution
Unit fails this test

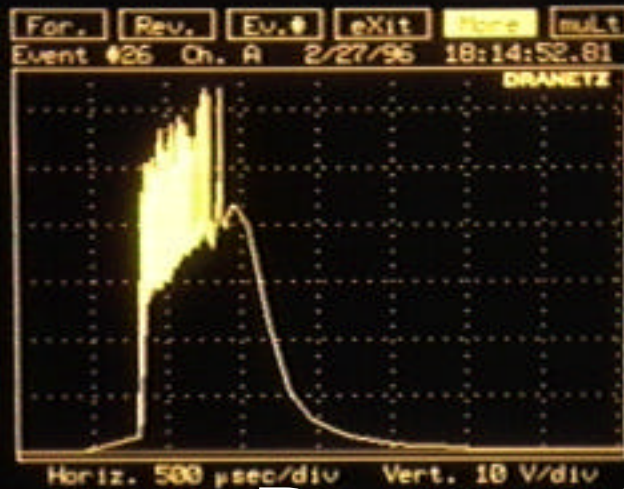
Impulse
Voltage
Measurements
Unit can measure very
short impulses



Nic 3091



Nic 320

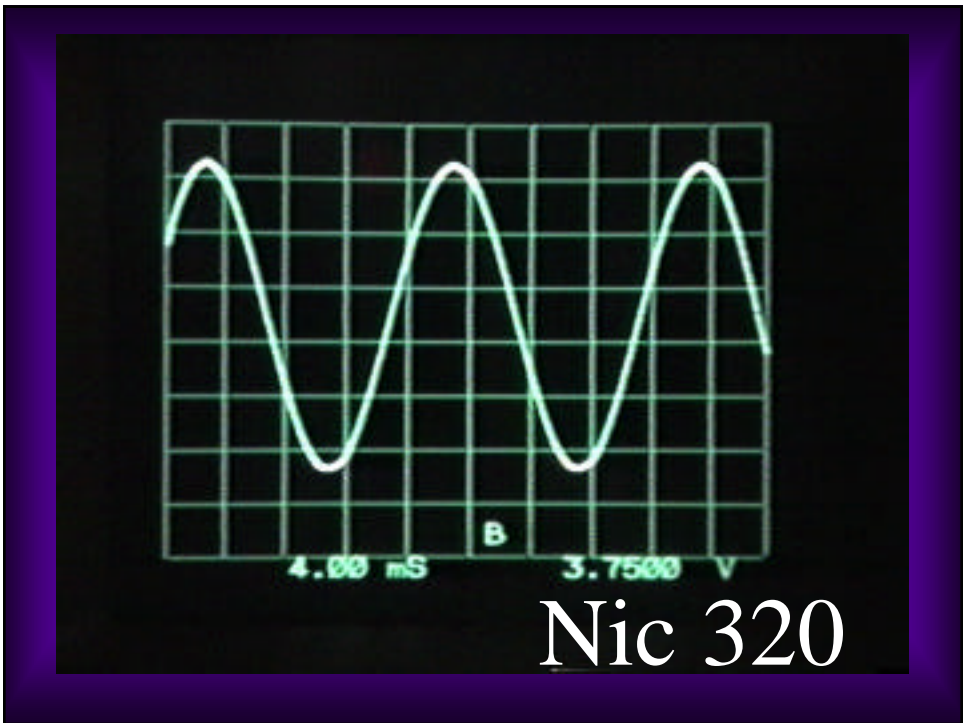
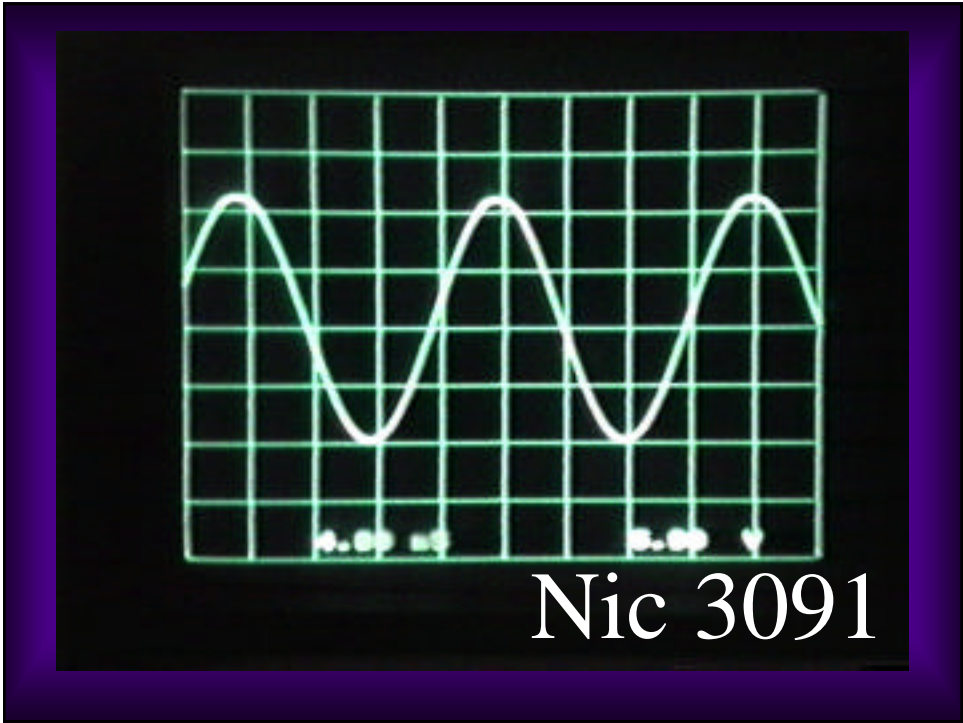


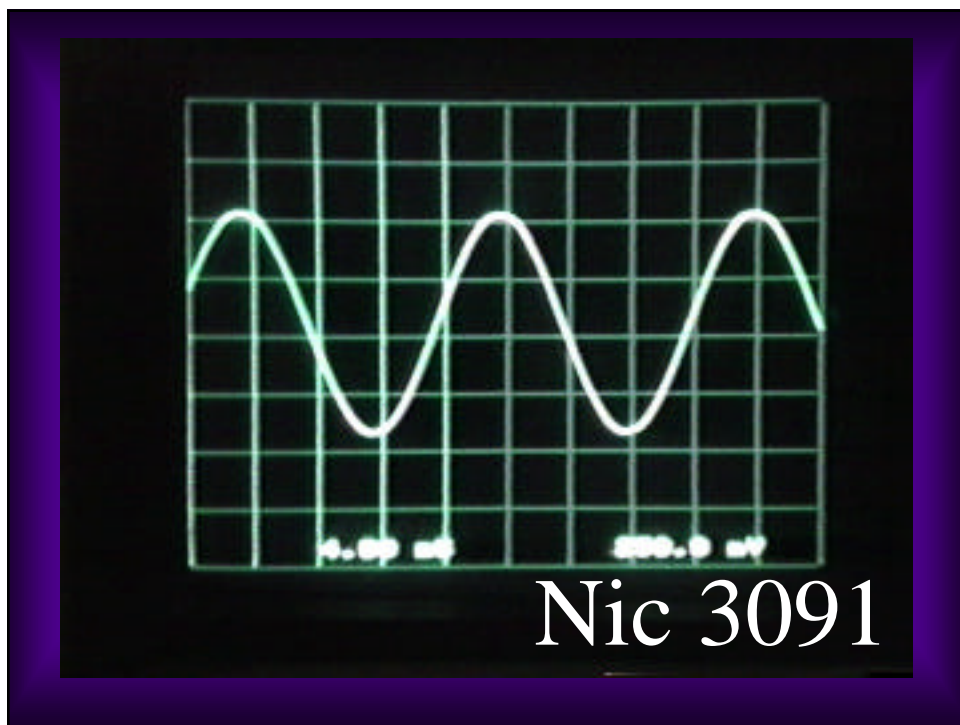
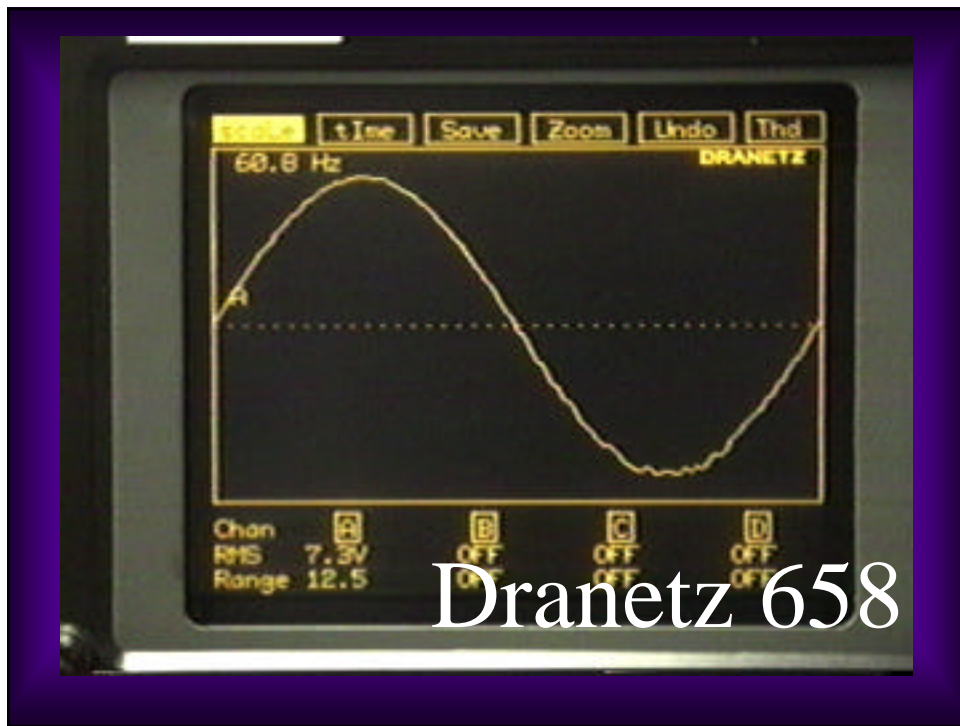
Dranetz 658

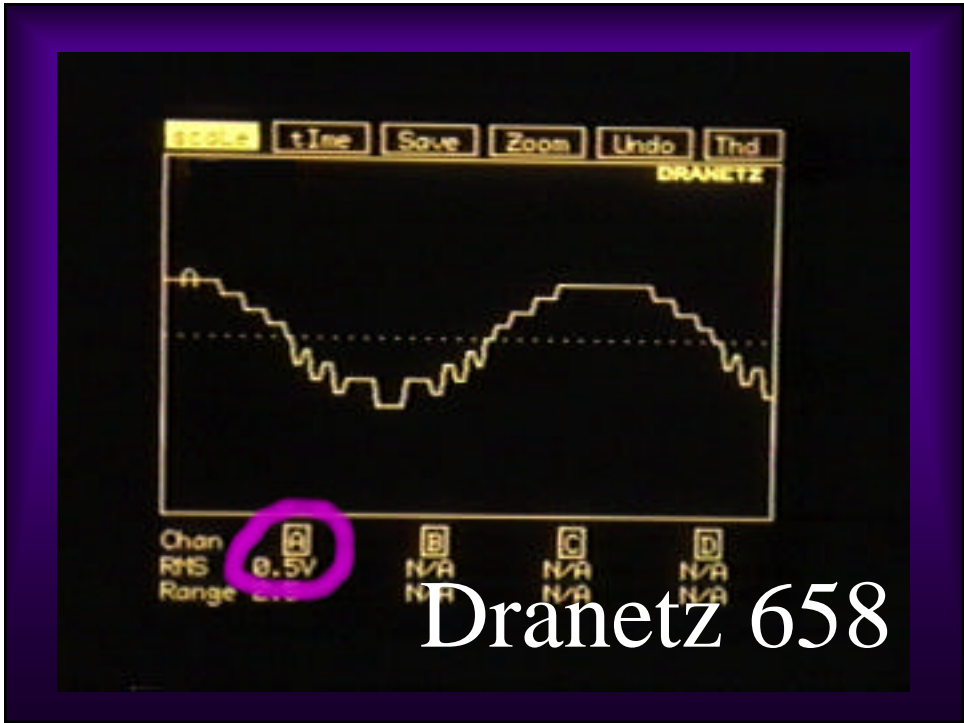
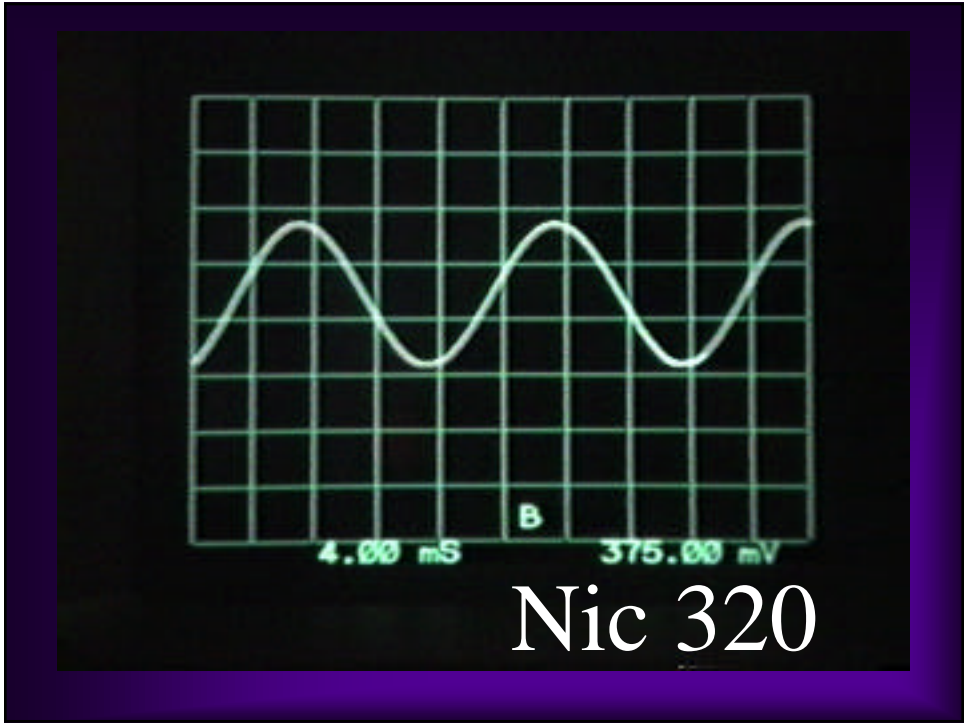
Impulse
Voltage
Resolution
Very poor resolution

Waveform
Display
Resolution
Very poor resolution

Nicolet 3091 Scope
Nicolet 320 Scope
Dranetz 658







In Summary

The unit is NOT
useful for
CURRENT
measurements in
cow contact areas

The unit does NOT
block DC voltages and
DOES NOT provide
indication of when DC
voltages are corrupting
the measurement

The unit's Floating
Zero creates
measurement errors
when used at cow
contact points

Steady-state
Voltage Resolution
is poor for cow
contact
measurements

Impulse Voltage
Measurements are
acceptable for
ONLY high level
impulses

Impulse Voltage
Resolution is poor
at cow contact
voltage levels

Waveform Display
Resolution is poor
at cow contact
voltage levels

No!

Yes!

