

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 with a purple border. The text is yellow. The value '1.7V' is circled in purple.



# Floating Zero Test

Unit fails this test



Status as of 10/2

Chan.	A	
RMS:	0.1V	0.0V

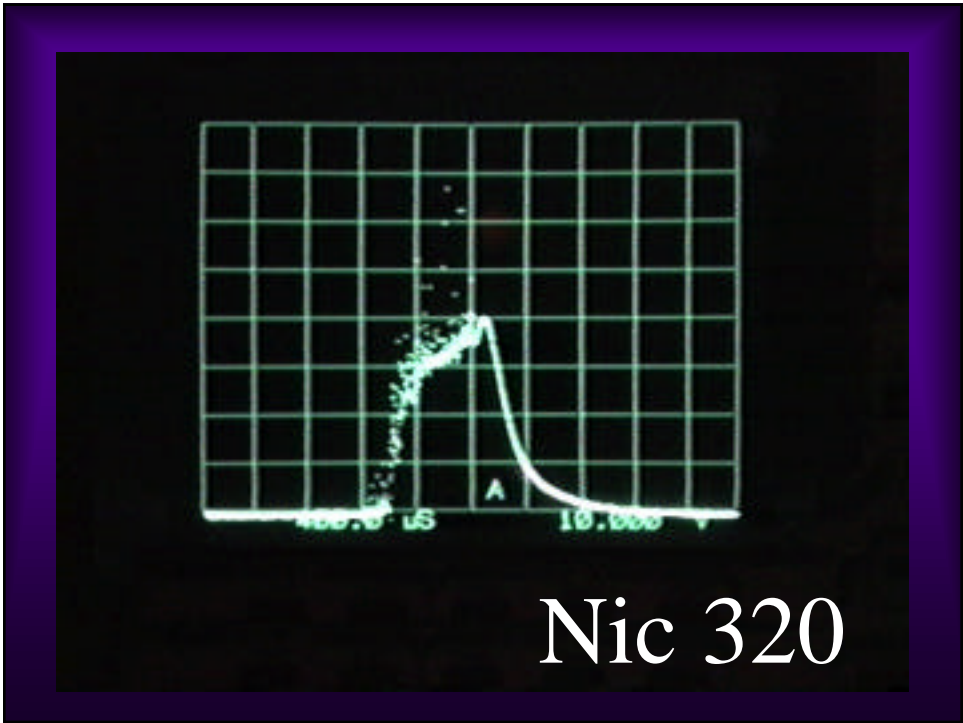
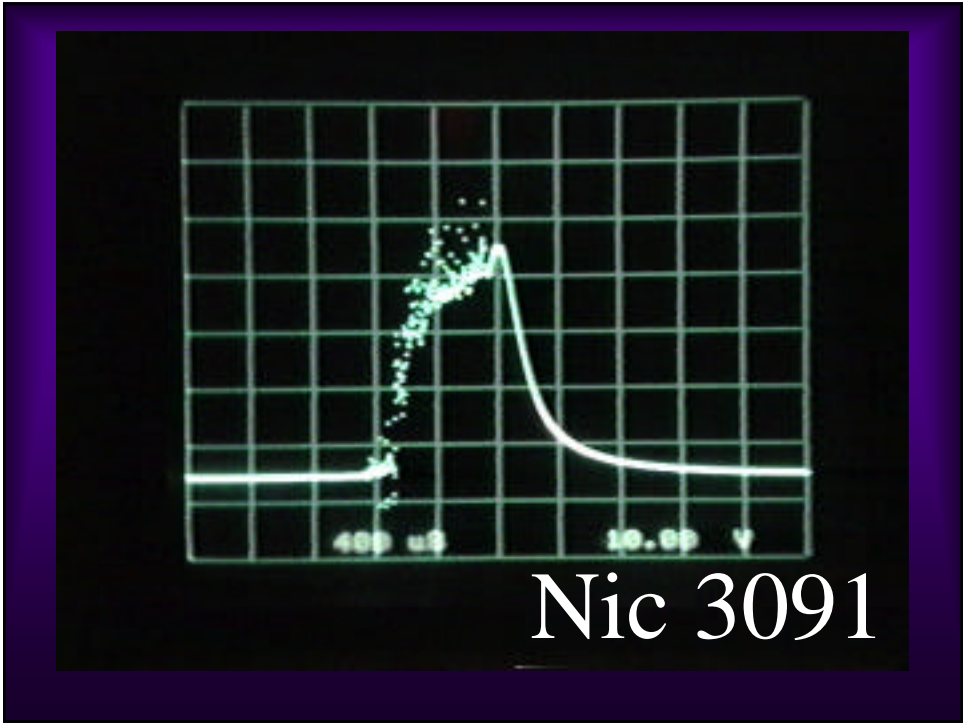
Monitoring: On

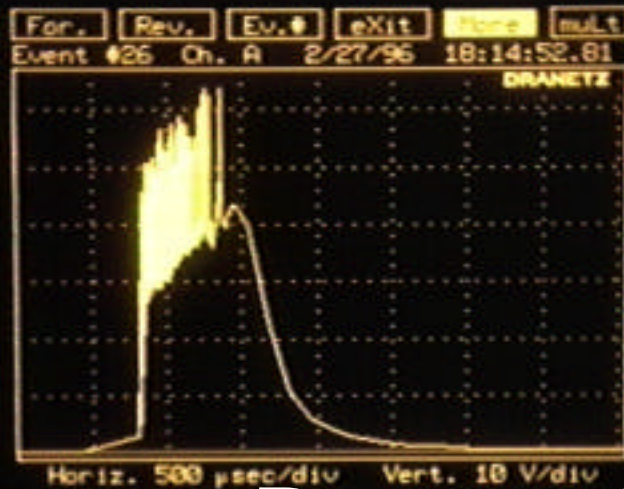
C	D
2V	0.4V

(5% 5.11)

Steady-state  
Voltage  
Resolution  
Unit fails this test

Impulse  
Voltage  
Measurements  
Unit can measure very  
short impulses



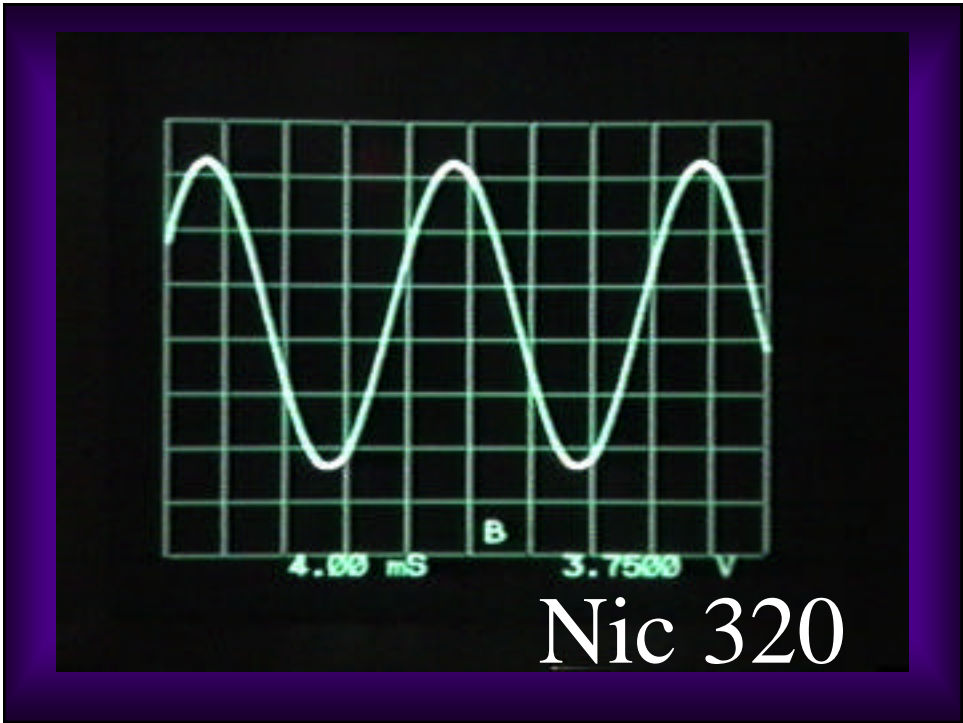
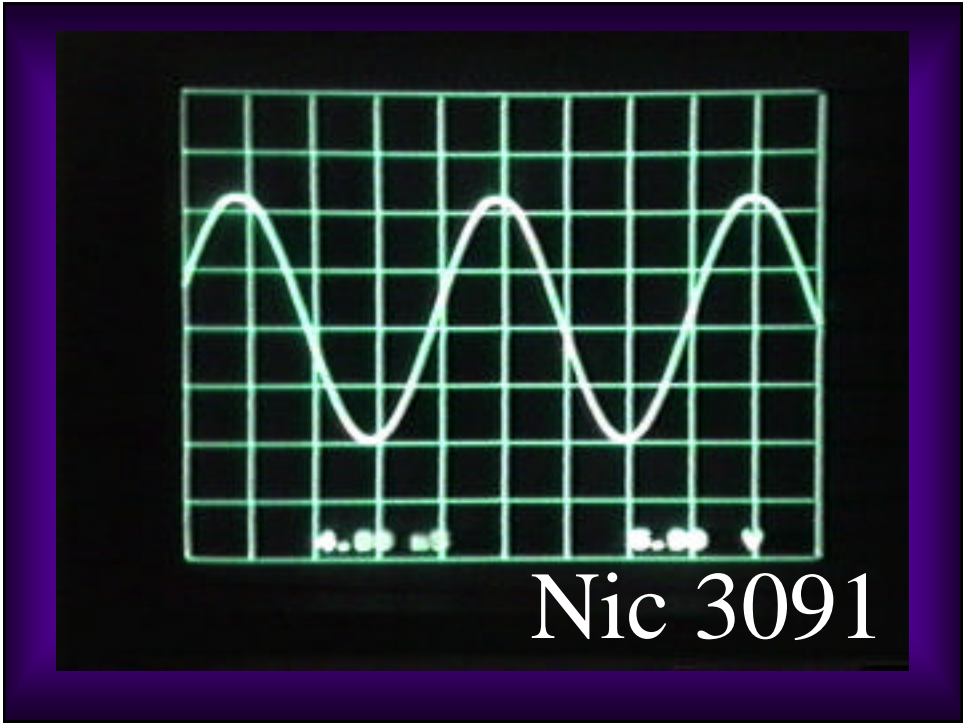


Dranetz 658

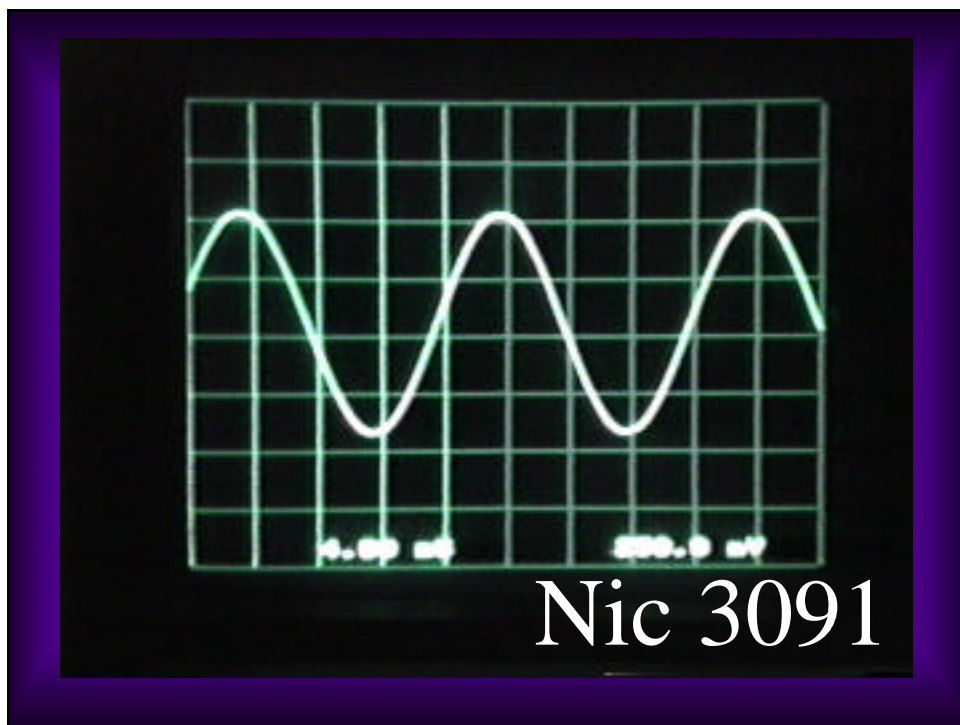
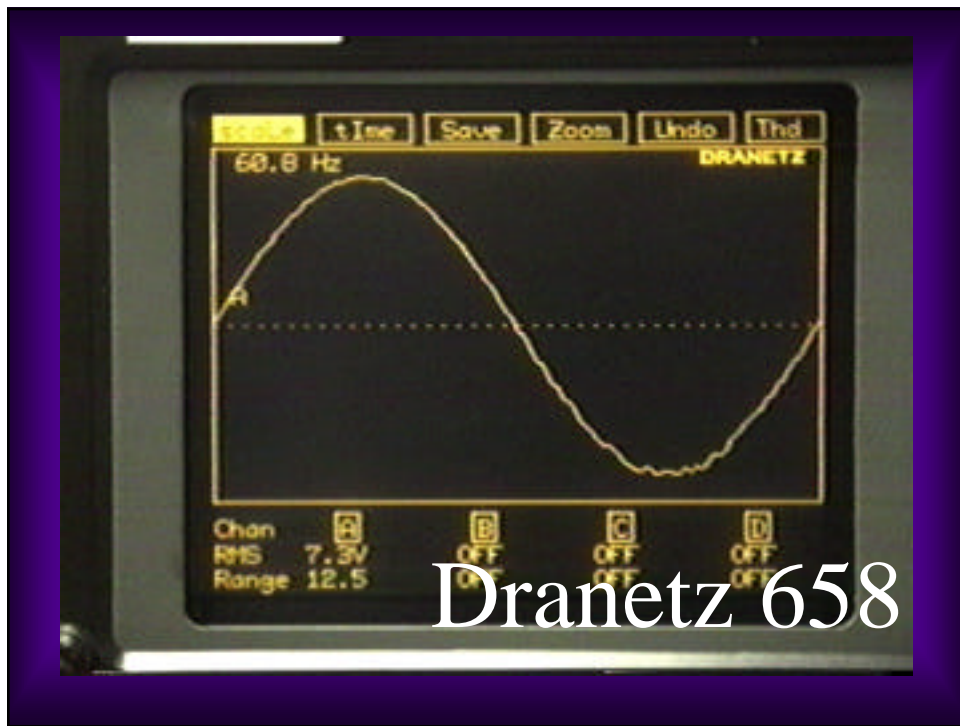
Impulse  
Voltage  
Resolution  
Very poor resolution

Waveform  
Display  
Resolution  
Very poor resolution

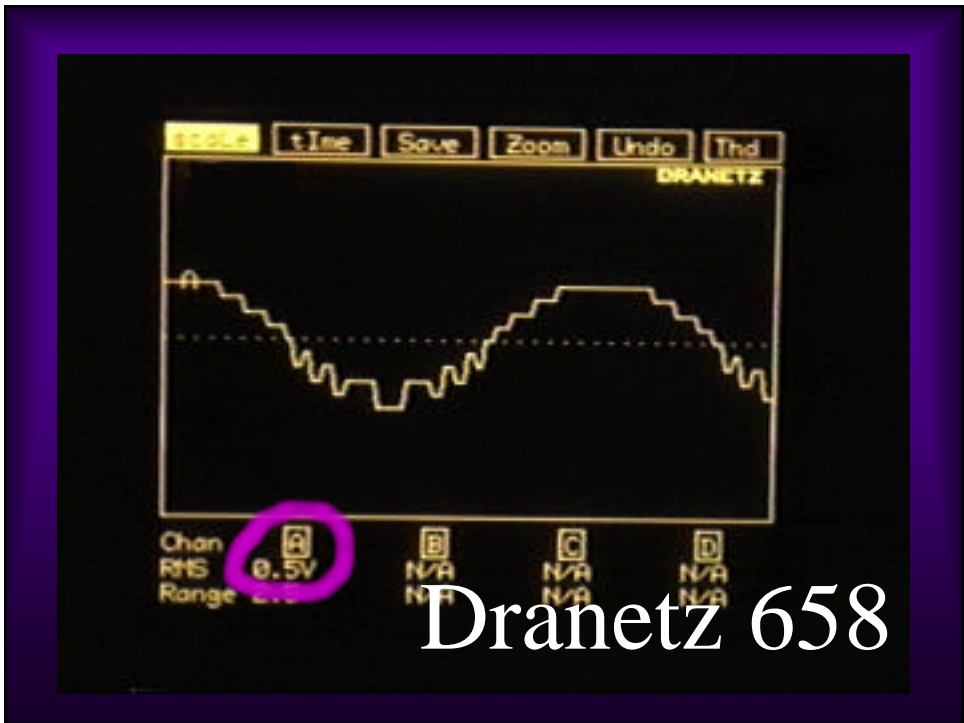
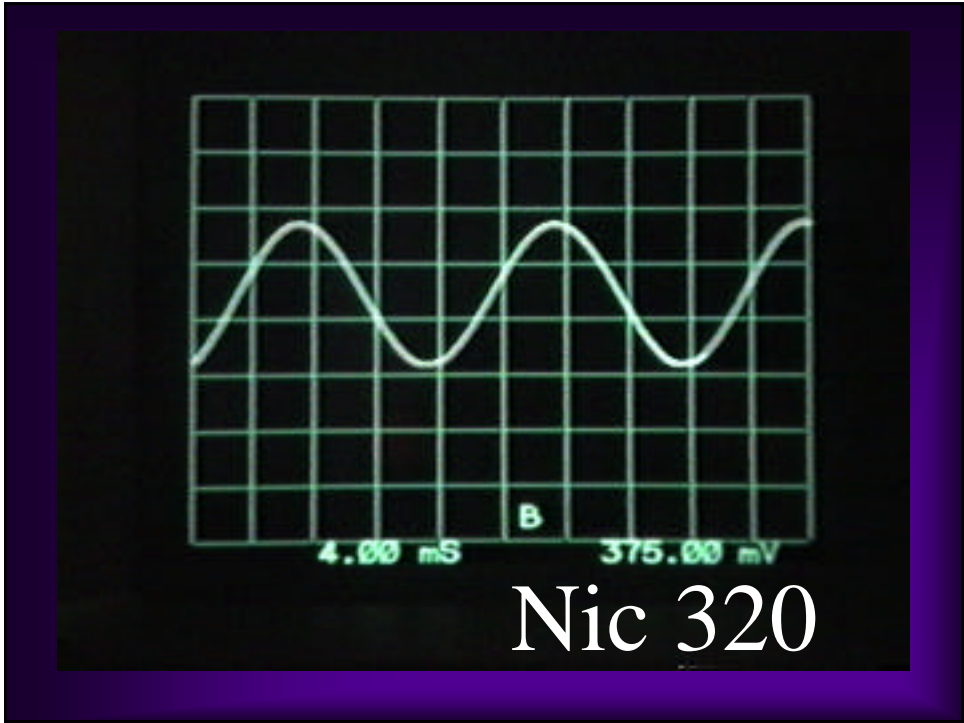
Nicolet 3091 Scope  
Nicolet 320 Scope  
Dranetz 658











# 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!

