NEW TEXTILES

MAS 681, E14-493
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Tuesdays 3-6pm
http://newtextiles.media.mit.edu/2012

BASIC ELECTRICAL UNITS & MEASUREMENT

RESISTANCE

VOLTAGE

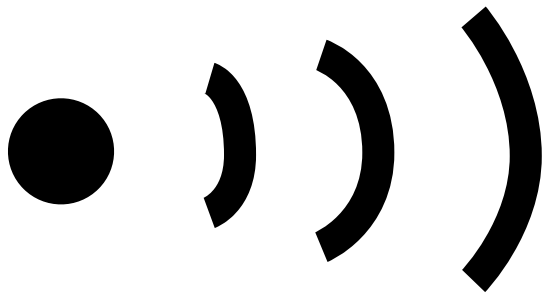
CURRENT


EXTECH
INSTRUMENTS
DC
AUTO
399.9
mV
SELECT
DATA
HOLD
Hz
µA
mA
10A
°C
°F
Ω
V
OFF
Auto
Power
Off
10A
COM
V·Ω
CAP·Hz
mA·Temp
10A
For
15 sec
MAX
every
15 min
UNFUSED
600V
MAX
600V AC
600V DC
200mA MAX
CAT II 600V
MN36 AUTORANGING MULTIMETER

CONTINUITY (RESISTANCE)

“Continuity”: conductivity, connectedness

is point A connected to point B? is this material conductive?




EXTECH
DC
AUTO
399.9
mV
SELECT
DATA
HOLD
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600V
MAX
600V AC
600V DC
200mA MAX
CAT II 600V
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MEASURE CONTINUITY

measure at least 6 materials or objects
note whether each is conductive
take turns

Resistance

How conductive/resistive is this material?

measured in Ohms

Ω


EXTECH
DC
AUTO
399.9
mV
SELECT
DATA HOLD
Hz
μA
mA
10A
°C
°F
V
OFF
Auto Power Off
10A
COM
V·Ω
CAP·Hz
mA·Temp
10A For 15 sec MAX every 15 min UNFUSED
600V MAX
600V AC 600V DC 200mA MAX
CAT II 600V
MN36 AUTORANGING MULTIMETER

resistance

	x1	Ω
kilo	x1,000	KΩ
mega	x1,000,000	MΩ

MEASURE RESISTANCE

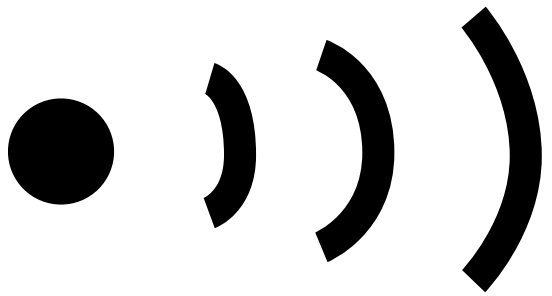
measure at least 6 materials or objects
note the resistance of each
take turns

measure at least 6 materials or objects
note the resistance of each
take turns
draw & measure a graphite resistor

RESISTORS

“Continuity”: conductivity, connectedness

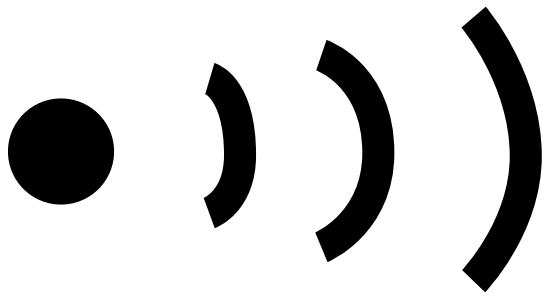
is point A connected to point B? is this material conductive?



“Continuity”: conductivity, connectedness

is point A connected to point B? is this material conductive?

what does connected mean?

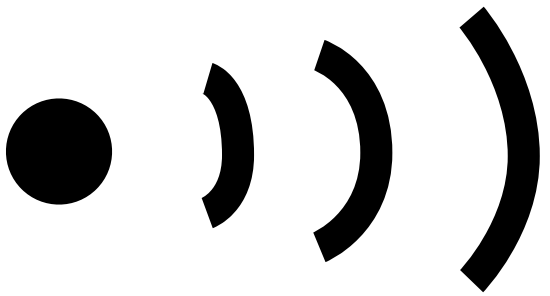


“Continuity”: conductivity, connectedness

is point A connected to point B? is this material conductive?

what does connected mean?

$R < 50\ \Omega$



Voltage

measured in Volts

V


EXTECH
DC
AUTO
399.9
mV
SELECT
DATA
HOLD
Hz
µA
mA
10A
°C
°F
Ω
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10A
For
15 sec
MAX
every
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UNFUSED
600V
MAX
600V AC
600V DC
200mA MAX
CAT II 600V
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MEASURE VOLTAGE

BREAD BOARDS

measure & note the voltage of your power supply

create a circuit with resistors & the breadboard
measure & note the voltage after each resistor

Current

measured in Amps

A


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DC
AUTO
399.9
mV
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HOLD
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µA
mA
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current

micro	x 1/1,000,000	uA
milli	x 1/1,000	mA
amp		A

MEASURE CURRENT

measure and note the current of your breadboard circuit

OHMS LAW

V (voltage) = I (current) x R (resistance)

calculate the current of your breadboard circuit

1ST HANDS-ON ASSIGNMENT

conductive yarns + conductivity

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