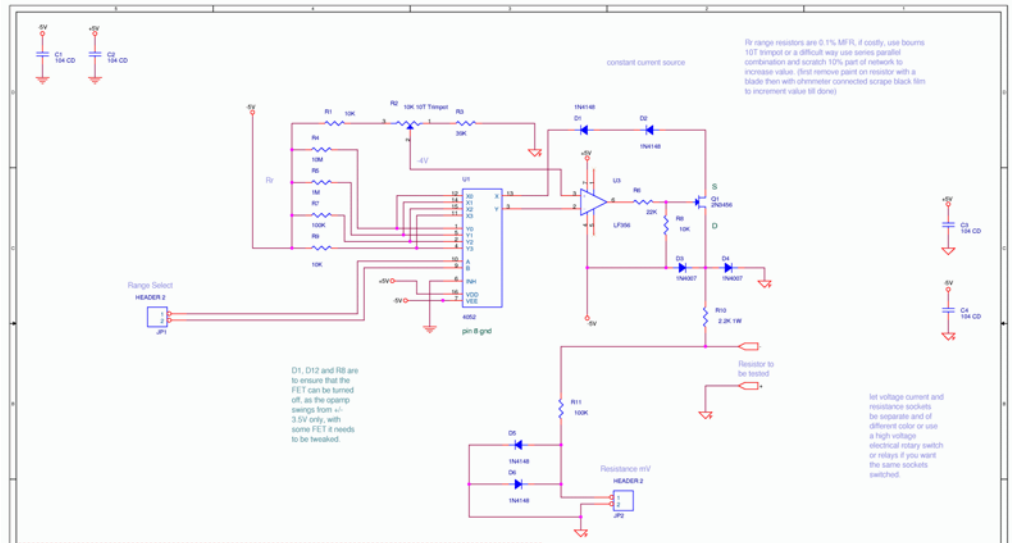
-5V
C1
104 CD
+5V
C2
104 CD
constant current source
Rr range resistors are 0.1% MFR, if costly, use bourns 10T trimpot or a difficult way use series parallel combination and scratch 10% part of network to increase value. (first remove paint on resistor with a blade then with ohmmeter connected scrape black film to increment value till done)
+5V
R1
10K
R2
10K 10T Trimpot
R3
39K
1N4148
D1
D2
1N4148
-4V
R4
10M
R5
1M
R6
100K
R7
10K
R8
10K
Rr
U1
X0
X1
X2
X3
Y0
Y1
Y2
Y3
A
B
INH
VDD
VEE
4052
pin 8 gnd
+5V
-5V
U3
LF356
R9
22K
R10
10K
Q1
2N5456
S
D
D3
1N4007
D4
1N4007
R10
2.2K 1W
-5V
Range Select
HEADER 2
JP1
Resistor to be tested
D1, D12 and R8 are to ensure that the FET can be turned off, as the opamp swings from +/- 3.5V only, with some FET it needs to be tweaked.
R11
100K
D5
1N4148
D6
1N4148
Resistance mV
HEADER 2
JP2
let voltage current and resistance sockets be separate and of different color or use a high voltage electrical rotary switch or relays if you want the same sockets switched.
+5V
C3
104 CD
-5V
C4
104 CD
put 104 CD cap for all ICs from positive to negative close to IC, even if ommited in circuit, for opamps on dual supply two caps.
unused inputs of logic and opamps pull up or down to avoid oscillations and noise. connect supply of all chips if not mentioned.
"analog ground" and "digital ground" must be linked at power supply only, avoid loops, let grounds radiate from a ground plane.
use MFR 1% for all Resistors, 33E means 33 ohms, 22K means 22 kilo ohms, 1M is 1 megohm. 10T Trimpot means like 10 turn bourns.
'474 CD' is 47 with 4 zeros pF, 470000 pF, remove 3 zeros 470 nF, shift decimal 3 places 0.47uF. "pl" is plastic, low leakage multilayer.
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Title
Resistance Measurement
Size
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Document Number
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Date:
Tuesday, June 01, 2004
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1
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