Develop a signal conditioning circuit to convert a transducer output (4 to 20 mA)

into a voltage range (0 to 10 Volt) and draw the circuit diagram.

Solution:

First step we have to change the current signal into voltage signal. We can use the circuit in

figure 3.18 by selecting R = 100 Ω. Therefore the current range will be converted into a

voltage range (0.4 to 2 volt). Second step, we will use an amplifier to obtain the required

output voltage range in assuming linear relation as:(Vout = G Vin + H). Substitute in the above

relation by the values (Vout= 0 at Vin= 0.4 V) and (Vout = 10 V at Vin= 2 V). We will obtain the

equations:

10 = G (2) + H

0 = G(0.4) + H

By solving these equations, the parameters of the circuit will be G = 6.25 & H= -2.5 Volt. The

complete circuit diagram is given in the following circuit.



Current to voltage converter

