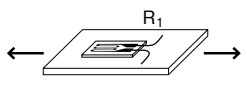
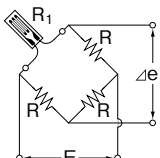
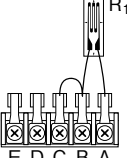
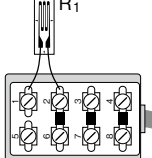
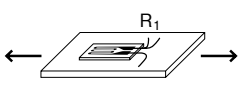
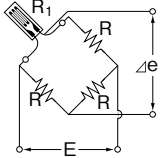
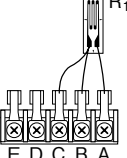
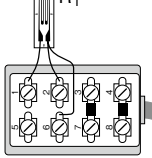
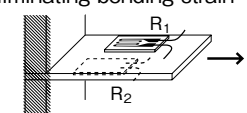
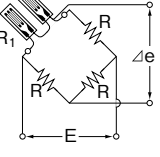
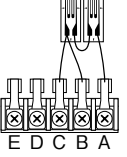
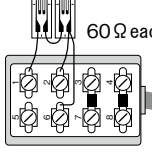
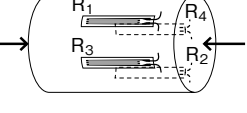
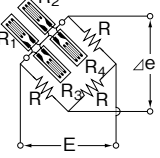
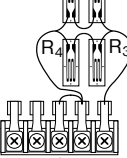
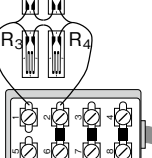
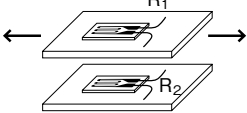
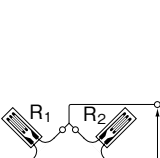

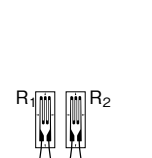
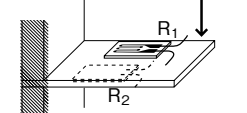
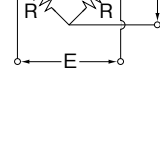

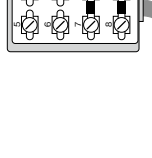
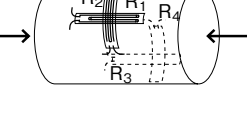
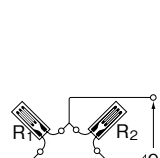
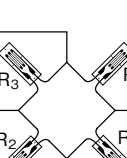
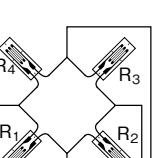
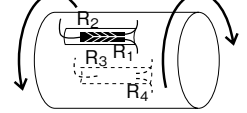
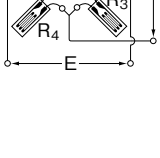
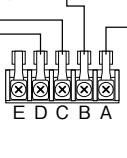
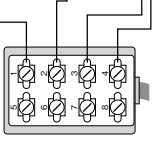


STRAIN GAUGE BRIDGE

Strain gauge connections and bridge circuits

Connection diagram varies according to strainmeter type.

Measuring mode	Bridge circuit	On switching box	On bridge box	Bridge output
<p>Quarter bridge</p> 				<p>E :Exciting voltage e :Output voltage Δe :Output voltage due to strain e_0 :Output voltage before strain generation R_0 :Resistance before strain generation ΔR :Resistance change due to strain</p>
<p>Quarter bridge with 3-wire system</p> 				<p>ϵ :Strain K :Gauge Factor $e = e_0 + \Delta e$ $R_1 = R_0 + \Delta R$ $R = R_0$ $\Delta e = \frac{E}{4} K \epsilon$</p>
<p>Quarter bridge with double gauge and 3-wire system eliminating bending strain</p> 				<p>$R_1 = R_0 + \Delta R$ $R_2 = R_0 + \Delta R$ $R = 2R_0$ $\Delta e = \frac{E}{4} K \epsilon$</p>
<p>Quarter bridge with 4 gauges</p> 				<p>$R_1 = R_2 = R_3 = R_4 = R_0 + \Delta R$ $R = R_0$ $\Delta e = \frac{E}{4} K \epsilon$</p>
<p>Half bridge with 1-active and 1-dummy gauges</p> 				<p>$R_1 = R_0 + \Delta R$ $R_2 = R_0 = R$ $\Delta e = \frac{E}{4} K \epsilon$</p>
<p>Half bridge with 2-active gauges eliminating tensile strain</p> 				<p>$R_1 = R_0 + \Delta R$ $R_2 = R_0 - \Delta R$ $R = R_0$ $\Delta e = \frac{E}{2} K \epsilon$</p>
<p>Full bridge</p> 				<p>$R_1 = R_3 = R_0 + \Delta R$ $R_2 = R_4 = R_0 - \nu \cdot \Delta R$ $\Delta e = \frac{E(1 + \nu)}{2} K \epsilon$ ν : Poisson's ratio</p>
<p>Full bridge</p> 				<p>$R_1 = R_3 = R_0 + \Delta R$ $R_2 = R_4 = R_0 - \Delta R$ $\Delta e = EK \epsilon$</p>

Output voltage due to strain is based on the condition that output voltage before strain generation(e_0) is zero.