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**Product Name :**

Frame Deflections And Reactions

**Product Code :**

SLE/EG/05



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# Description :

**Frame Deflections And Reactions** (Product Code: SLE/EG/05) lets students load a portal-type frame and measure how it sways and what reactions develop at its base. One of two frames is fitted between two supports; load cells in the supports read the bending moment and horizontal reaction at the foot of each upright, and a precision indicator records sideways deflection at the beam-to-upright junction. A Vernier caliper is included for cross-section measurement. The module is made by **Jain Scientific Equipments Pvt Ltd (ScienceLab)**, Ambala, as structureslab equipment for college and university civil engineering courses.

## Key Details

| Parameter | Detail |
|---|---|
| Type | Frame sway, deflection and support reaction experiment |
| Frames | Choice of two frames, fitted between two supports |
| Loading | Vertical loads on the beam member; both frame beams can be loaded anywhere along their length |
| Sway measurement | Precision indicator at the junction of the beam and the upright |
| Reaction measurement | Load cells in the supports measure bending moment and horizontal reaction at the base of the uprights |
| Positioning | Pointers on each support work with the scale on the Structures Platform |
| Included measuring tool | Vernier caliper for measuring the frame cross-section |
| Predictions compared | Reaction forces, fixing moments, whether the frame sways, and the magnitude of sway |

## Typical Use

Students begin with calculation. Using textbook frame analysis they predict the base reactions and fixing moments for a given load position, and decide whether the frame should sway and by how much. They then set the supports using the pointers and platform scale, apply the load to the beam and read the support load cells and the sway indicator. A symmetric load on a symmetric frame should give little or no sway; moving the load off-centre, or changing to the second frame, shows sway appearing even though no sideways force is applied.

That is the key lesson: the module helps students understand the two causes of frame sway other than direct loads, which many find counter-intuitive on paper. Measuring the member sizes with the supplied caliper keeps the stiffness calculations honest. For departments building a set of mechanics lab equipment for structural analysis, it links single-beam work to full frame behaviour.

## Manufacturer

Frame Deflections And Reactions is manufactured by **Jain Scientific Equipments Private Limit**
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