Cantilever Bridge Support Reaction Application (EDC-CBSRM-510)

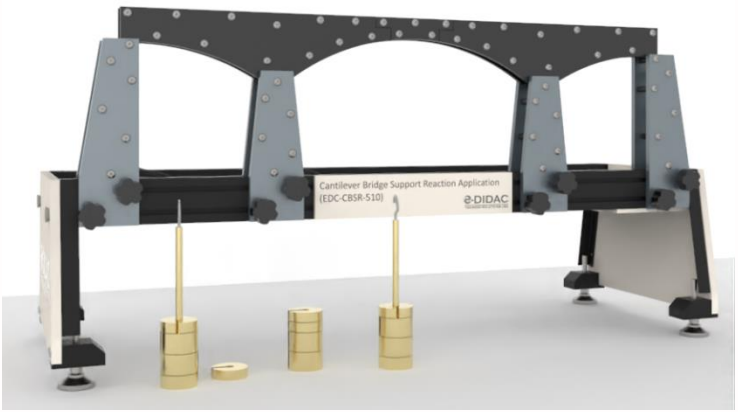
SPECIFICATIONS:

- Designed to fit onto the Structures platform for ergonomic use.
- A simplified model representing a realistic bridge structure for better understanding.
- Three load cells to measure support and internal reactions at key points.
- Supports multiple load configurations, including point loads and uniformly distributed loads (UDLs).
- Includes a storage tray to keep small components organized and secure.
- Fully compatible with EDAQ (Versatile Data Acquisition System) for data collection and analysis.

DESCRIPTION:

This Suspended Beam Bridge Trainer is a hands-on educational tool designed to help students analyze load effects on bridge support reactions and internal forces. It provides a simplified yet realistic model of a Gerber beam bridge, allowing users to observe and measure how different load conditions impact the structure. The bridge has two outer "anchor" sections, each on two supports. The anchor sections each has a short cantilever that supports a short central suspended section. The system includes three built-in load cells, which precisely measure the reactions at key points in the bridge. The trainer supports point loads and uniformly distributed loads (UDLs), providing a wide range of experimental possibilities. The four bridge supports feature precise positioning indicators that work with the scale on the Structures platform, ensuring accurate measurements.

Students can apply loads at various positions and analyze support reactions and internal forces between the cantilever and suspended sections. The USB interface hub allows for seamless integration with the EDAQ software, enabling computerized data collection and real-time analysis. The trainer also helps students understand fundamental engineering concepts such as influence lines, the Principle of Superposition, and how loads transfer through bridge structures. The package includes all necessary components, such as two anchor sections, a suspended section, cables, mass hangers, and weights, making it an ideal classroom and laboratory tool.



TECHNICAL DATA:

- **Total bridge span:**
  - 0.87 m.
- **Load measurement:**
  - Three built-in load cells (left-hand supports and anchor section).
- **Bridge structure:**
  - Two cantilever/anchor sections (each with outer supports).
  - One suspended section.
  - Two inner supports.
- **Load application:**
  - Supports point loads and uniformly distributed loads (UDLs).
  - Eleven mass hangers.
  - 50 × 20 g masses.
- **Measurement system:**
  - USB interface hub for computer display and data acquisition.
  - Works with EDAQ software.
- **Learning Outcomes:**
  - Introduction to the suspended beam (or Gerber) bridge.
  - Support reactions for an increasing point load and a uniformly distributed load (UDL).
  - How loads affect bridge support reactions and internal reactions between the cantilever and suspended sections
  - Influence lines for supports and internal reactions due to a load moving across the beam structure
  - The Principle of Superposition
- **Storage and accessories:**
  - Three cables.
  - Storage tray for small components.
  - Comprehensive user guide.