

# Modular Breakout System (Breakout Box & Fault Insertion Unit)

- Modular Patch Panel Optimised for Fault Insertion
- Designed for Pickering PXI Chassis
- Designed to Work with Specific Pickering FIU Modules
- Many Options for Different Current and/or Voltage Requirements
- Customized Versions Available to Match Specific Requirements



## Designed to Simplify HILS Applications

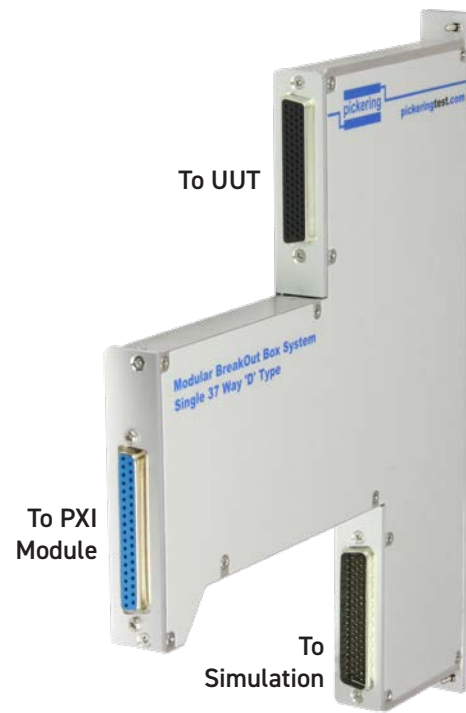
Traditional HILS (Hardware In the Loop Simulation) features signal switching for the purpose of injecting faults into a UUT (Unit Under Test). In addition, a Breakout Box (BoB) is used to make manual measurements as well as induce faults manually prior to writing test code. The majority of the BoBs and FIU systems available today are not modular and are fixed in configuration, creating test solutions that are limited in scope. In addition, they have cable configurations that are cumbersome and in many cases expensive.

## Modular in a Single Unit

This low-cost Modular Breakout System combines a BoB feature set with the added flexibility of an FIU. By mating the FIU chassis directly to the BoB, cabling is minimized, creating a more compact reliable design and improving signal integrity. In addition, all cables to the simulation system and the UUT are located behind the front panel of the BoB. This creates a simpler front panel that is less prone to damage.



**Modular Breakout System  
Attached to an 8-Slot PXI Chassis**



**Ease of Connection to Breakout  
System and FIU**

## Choices for FIU and Breakout System Requirements

As the modular design uses PXI, users can take advantage of Pickering's large range of FIU modules - the largest in the industry. This range of FIU modules is available in different choices for channel count, fault busses, voltage and current. Multiple FIU module types can be installed in a chassis. Go to:

[pickeringtest.com/products/pxi-switching/fault-signal-insertion](http://pickeringtest.com/products/pxi-switching/fault-signal-insertion) to see the broad range of choices.

In addition, the Breakout System modules are optimized for each FIU module, so it is as customizable as the FIU system.



## Programmable Resistance

Traditional BoB designs feature a manual potentiometer for creating resistive faults. Pickering can automate this process using one of our programmable resistance modules for which a Breakout System module is available. The module can be controlled manually through a soft front panel as well as programmatically. This can speed up a test process and ensure repeatability.

## Field Upgradable

If testing needs change, both Breakout System modules and FIU modules can be added and/or replaced by the user. The software driver from Pickering supports our entire FIU range, so no new software is needed to integrate the new modules.

## New Designs

Pickering is always looking to expand our catalog of FIU and Breakout System options. If you don't see what you need, contact us and we will see if we can accommodate your test requirements.

## Breakout System Module Capability

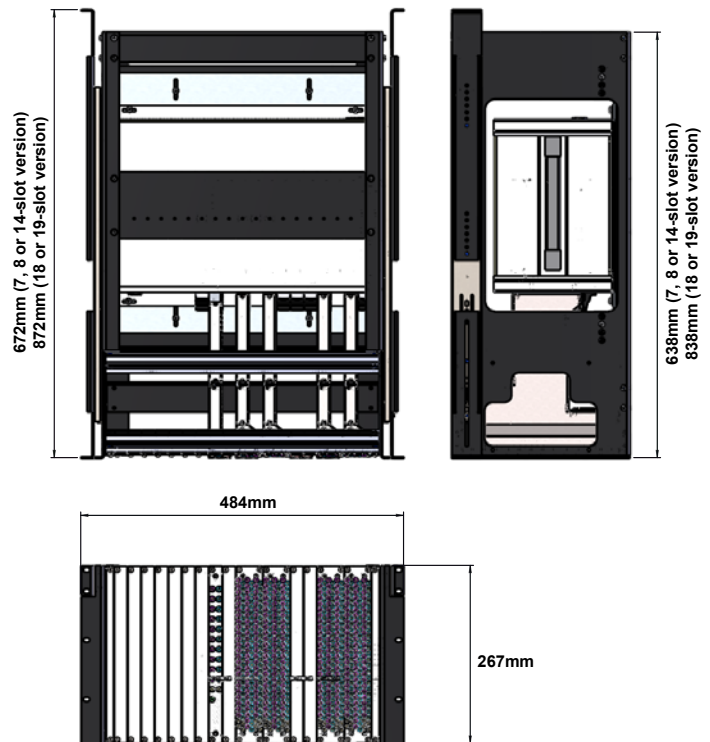
The voltage and current specifications of the Breakout System module's UUT and simulation ports are matched to the FIU module for which they are designed, but the front panel 2mm terminals are for low voltage (30VAC/60VDC) monitoring purposes only.

The two frames have different depths, the 7/8/14-slot one is 638mm deep ; the 18/19-slot one is 838mm deep.

## Specification

MBoS Frame Dimensions:	Full width 19 inch rack, 6U high, 638mm depth (for 7, 8 or 14-slot chassis version), 838mm depth (for 18 or 19-slot chassis version).
Chassis Compatibility:	PXI Chassis: 40-914, 40-922 & 40-923A, LXI Modular Chassis: 60-102B & 60-103B.
PXI Module Compatibility:	Breakout modules are available for all 1 or 2 slot fault insertion switch modules and selected programmable resistor modules.
Front Panel Connectors:	2mm female terminals rated at 30VAC, 60VDC, 10A. 4mm female terminals rated at 1000V, 32A.
UUT Connectors:	78-pin female D-type (for all PXI modules rated up to 30A)*.
Simulator Connectors:	78-pin male D-type (for all PXI modules rated up to 30A)*.
UUT/Simulator Connector Voltage Rating:	300VDC for 78-pin D-type*
UUT/Simulator Connector Current Rating:	Up to 30A for 78-pin D-type*

\*For applications above 10A, the UUT and Simulator connectors will be the same type as the PXI module's front panel connector.



MBoS Frame Dimensions

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