

The Expansion Channel Module allows 5900 Series Electromechanical Testing Systems users to add up to eight channels of signal conditioning and control. Given the basic configuration of 5900 systems of load, extension, and up to three additional channels, the Expansion Module provides up to a total of 13 transducers for simultaneous monitoring, feedback, and control<sup>1</sup>.

## The Benefits of Expandability

Advanced mechanical testing applications often require additional channels of data acquisition or control. In composites testing, it is not uncommon for strain gauges to be applied to the specimen for axial, lateral, or 45° strain measurement during tensile, compression, bending, or shear testing<sup>2</sup>. Additional inputs may include temperature, pressure, or other user-defined transducers. The Expansion Channel Module allows up to eight additional channels to be synchronously brought into a single test data file for ease of analysis and reporting. All signals are monitored simultaneously and in parallel without any reduction in overall system performance or data collection capability.

The Expansion Channel Module works by housing up to eight Instron Signal Conditioning Modules (SCM's) in a chassis that is connected to the 5900 Series testing system by a short cable. Extending the basic five channels to a total of 13 allows for additional features including:

- Limitless possibilities for advanced research and complex testing requirements
- 19-bit resolution (standard feature of the SCM)
- Ability to provide automatic transducer recognition (standard feature of the SCM)
- Advanced capabilities using Bluehill® 3 Software that include mixing channel calculations to derive output parameters:  
 $\text{Result} = (\text{Channel X})/\text{Force}$   
 $\text{Result} = (\text{Channel Y} * \text{Channel Z})/2$

### Notes

1. 13 total channels excludes a digital I/O board. If a digital I/O board is installed, one slot in the machine is consumed and the total number of available channels is reduced to 12.
2. Instron SCM's are intended for Instron force or strain sensors (load cells or extensometers), high level DC signals (0-10V), and low level input with AC excitation (2.5 mV/V). The SCM's do not include bridge completion for single strain gages (quarter-bridge) or half-bridge sensors; in these cases external bridge completion is required.



## Features

Each additional channel contains the same features that are built into the Instron® Signal Conditioning Modules (SCM's) such as:

- Same accuracy specifications as Instron SCM's (refer to 5900 frame documentation)
- Adjustable data sampling rates and bandwidth
- Automatic recognition and electrical calibration of cells and extensometers
- Fully-synchronized data acquisition and logging across all machine sensor channels
- Each channel can be used for test control



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## Compatibility

- The 2210-920 Expansion Channel Module is compatible only with 5900 Series Electronics configured with Bluehill® 3 Software
- The 2210-920 Expansion Channel Module is available in two configurations: 4-channel or 8-channel
- Addition of the 2210-920 Expansion Channel Module to previously installed systems requires a visit by an Instron Field Service Engineer
- Dimensions (L × W × H): 11.5 × 12.25 × 6.75 in
- External power needed (various power cord options available to accommodate voltage requirements)
- 68-way connection cable (connects module to 5900 controller panel)

[www.instron.com/accessories](http://www.instron.com/accessories)



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