SV4E-I3C
I3C Test and Debug Module

Versatile Tool for Exercising, Analyzing, and Programming Sensor Interfaces

The SV4E-I3C is an all-inclusive solution for I3C-based sensor interface development, test, and programming. Containing three instruments in one, this tool can act as a **protocol exerciser** for testing and debugging I3C slave or master devices. It can also act as a complete **protocol analyzer** with fine-resolution timing analysis and a full suite of conformance test capability. Finally, it contains a deep vector memory, which allows it to be used as a general purpose I3C **device programmer**. All three categories of instrumentation features are accessible simultaneously and in real-time using the award winning Introspect ESP Software.

KEY FEATURES:

- **Device roles:** able to configure multiple devices with different roles (main master, secondary master, slave) concurrently

- **Device instances:** integrates 4 parallel devices, each with its own independent protocol stack

- **Timing resolution:** 5 ns resolution on delay generation (exerciser) and time-stamp (analyzer) logic

- **Protocol analysis:** easily trigger on CCC's and patterns for private and device to device communication, IBI, and hot-join

KEY BENEFITS:

- **Complete debugging:** simultaneous protocol exercising and analysis enables complete debugging of individual sensor/controller devices or entire multi-device systems

- **Flexible:** solution featuring I3C and I3C Basic protocol support with real-time voltage and timing controls

- **Automated:** scripting capability ideal for debug tasks, verification and full-fledged production screening of devices and system boards
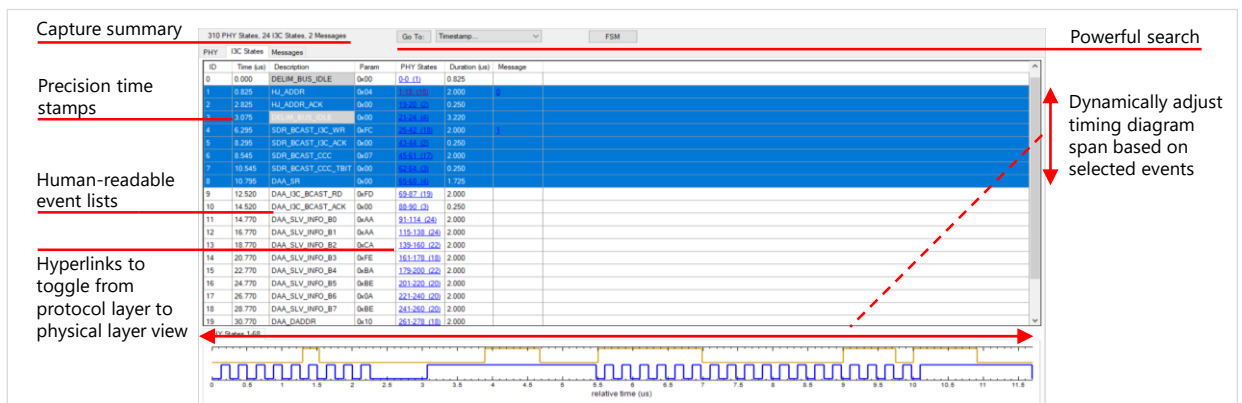
Typical Application: Probing Live Buses
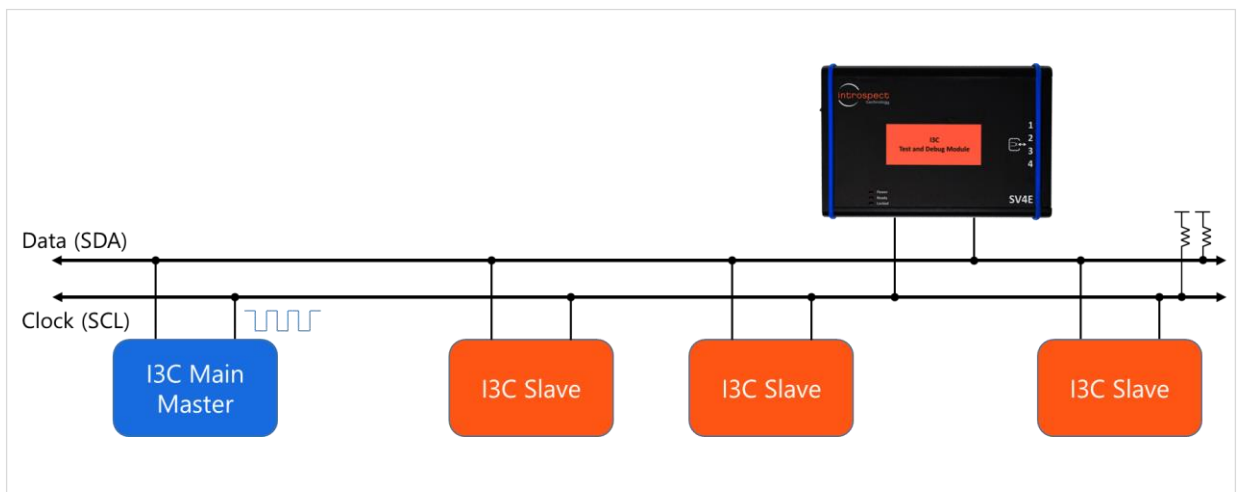
General Specifications

Feature	Description	Benefit
Protocol	I3C + I3C Basic	Flexible software allows for closely tracking the rapid MIPI Alliance protocol evolution
Number of Instances	4	Emulates the most complex multi-sensor operating paradigms
Maximum Data Rate	33 Mbps	Provides a future-proof investment for next generation device data rates
On-Board Memory	1 Gbyte total	Can act as a device programmer

Electrical Specifications

Feature	Description	Benefit
Voltage Levels	Programmable up to 1.8 V	Supports a wide array of devices under test
Push/Pull Drivers	Supported	Enables maximum-speed operation with the most advanced I3C devices
Open-Drain Drivers	Supported	Interoperates with legacy I2C devices
Per Wire Skew Injection Resolution	5 ns	Enables executing characterization sweeps

Detailed Analysis Capability