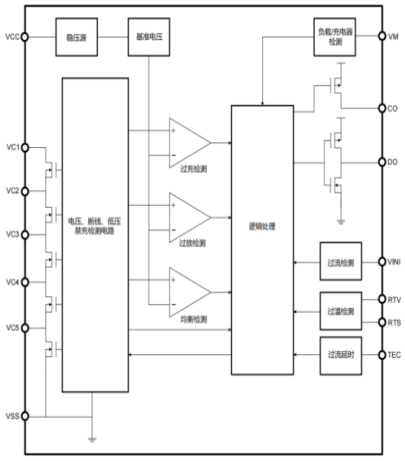
8 - Sites' BMS IC Test Solution



BMS IC Features:

- High-accuracy battery voltage and current sensing
- Multi-cell balancing capability
- Comprehensive protection functions, including over-charge, over-discharge, open-wire detection, charge inhibit under low voltage, charge/discharge over-current, and short-circuit protection
- Adjustable discharge over-current protection via external capacitor

Test Solution Description:

- Test platform: STT-700
- FPVI120 provides 2 channels with up to 100 V / 20 A test capability
- FOVI provides 8 channels with up to 50 V / 1 A test capability
- FVI16N provides 16 channels with up to 40 V / 100 mA test capability
- CBIT provides 72 relay driver channels and integrated 3.3 V / 5 V / ±12 V DC power supplies
- 32-channel digital I/O, up to 100 MHz, with support for dynamic pattern modification
- Independent high-precision reference with real-time self-calibration to ensure measurement accuracy
- The current 8-site solution supports up to 14-cell BMS IC testing; the 4-site solution supports up to 28-cell BMS IC testing
- The system supports 26 slots in total and can be configured with up to 416 VI channels. The current configuration includes 104 VI channels, 8 pairs of TMU units, 32 digital channels, and 144 relay control channels
- Flexible configuration for 2 / 4 / 8 sites according to the VI channel requirements of different ICs
- Ample VI resources facilitate future enhancements such as error-proofing (poka-yoke) and test program optimization

8 sites tester configuration

Module	FPVI	FOVI	FVI16N	QTMU	CBIT	DIO32
Quantity	4	4	4	2	2	1

As IC pin counts and functional complexity continue to increase, the demand for VI resources at a single test instance is also rising. However, the majority of VI requirements are concentrated on low-voltage, low-current ranges, resulting in underutilization of high-voltage and high-current ranges in conventional 4P4O standard configurations.

By adding only four FVI16N modules and one QTMU module to the existing 4P4O standard configuration, most test solutions can double the number of test sites, significantly improving test throughput at a low incremental cost. This solution demonstrates Sinetest's flexible system scalability and highly efficient utilization of board-level resources.