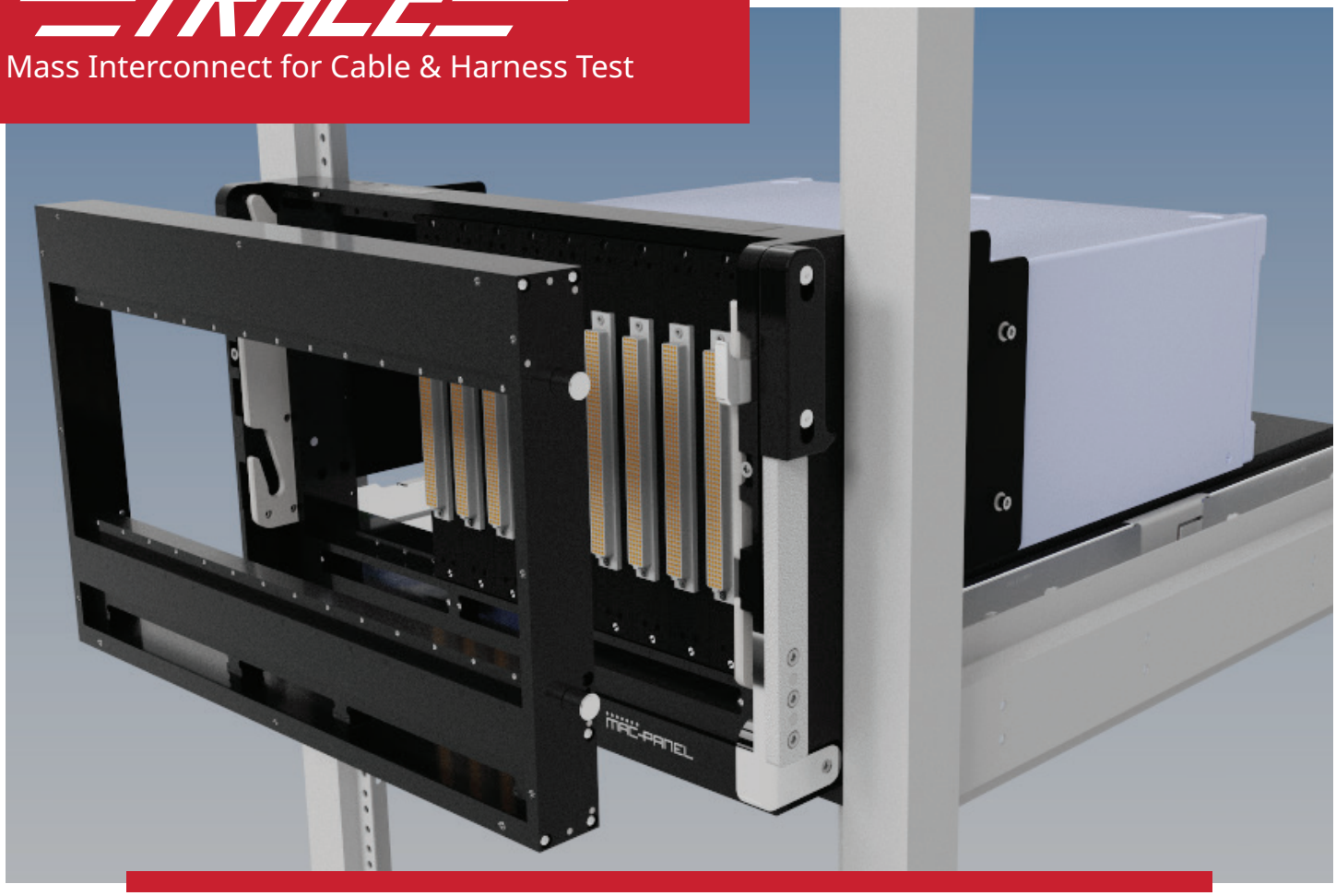
TRACE

Mass Interconnect for Cable & Harness Test



Mass interconnect is how aerospace and defense test stations have separated the instrument from the fixturing for decades. While the instrument stays in modern applications, the fixture changes. The connection between them is built to survive continual updates. TRACE applies decades of mass interconnect practice to cable and harness testing.

CURRENT WIRING ANALYZER STATIONS BUILDS

Wiring analyzer stations are commonly built one of two ways.

Harness to Instrument

Each test harness terminates in the connector that mates to the analyzer itself. That connector is commercial grade, not specified for thousands of mating cycles. Every changeover causes wear on the face of the instrument, and replacing it takes the instrument out of service.

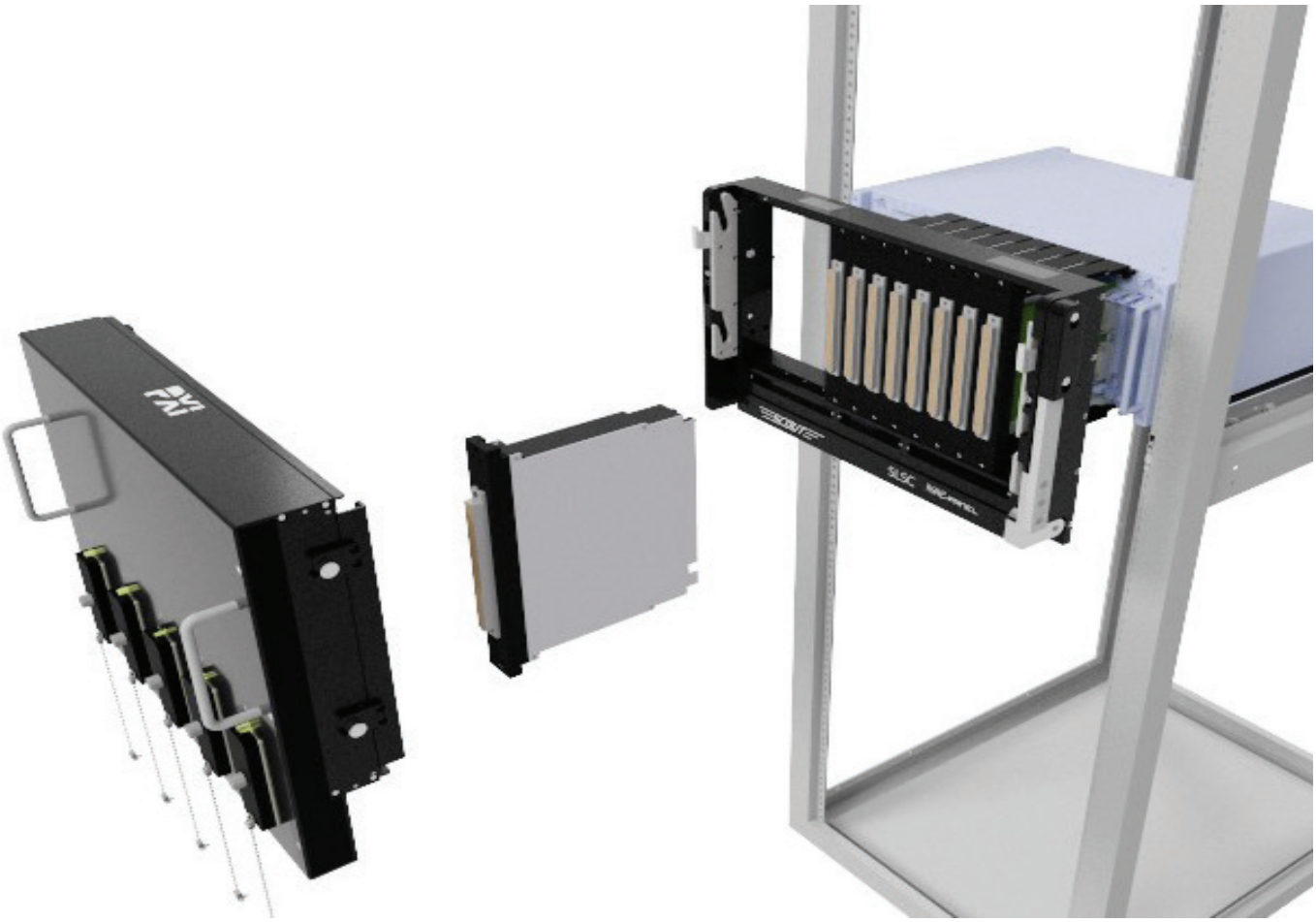
Harness to Panel

Connectors are mounted to the rack, and harnesses mate to the panel instead of the instrument. Connectivity is common across the test harness library, and the instrument is protected. The panel remains fixed to the rack, while test and connectivity requirements are routinely updated.

TRACE places a rugged, easily replaceable interface between the analyzer and the harness under test. High cycle-life contacts paired with a quick-change interface survive years of daily use and constantly evolving test connectivity requirements.

THE SYSTEM

TRACE is a suite of products, not a single attachment. There are four distinct elements that work together.



COMPONENT	WHAT IT DOES
Receiver	The fixed half; Mounts to your test rack and holds the connections to your analyzer. It stays in place and is not disturbed during changeover.
Direct Access Kit (DAK)	The adapter; DAKs populate the receiver and make the connection to the analyzer's test modules. The DAK is what makes TRACE specific to your cable harness test equipment.
Interface Test Adapter (ITA)	The moving half; The ITA adapts, whether that is a set of test cables or connectors that mate directly to the product. It mates to the receiver in seconds with a single motion. A station can support as many ITAs as it has test applications.
Contacts	MAC Panel manufactures its own rugged contacts rated over 20,000 mating cycles, used throughout the interface.

The analyzer connections are made once, behind the receiver, and left undisturbed. Every changeover after that happens at the receiver-to-ITA interface. The receiver and the ITA mate in a single motion across hundreds to thousands of test points.

The receiver stays. Everything else adapts to the test requirements.

CABLE TESTER WITHOUT A RECEIVER

Test equipment is built around the test requirements at a single point in time. When a program changes, or a test type changes, the panel is the element that cannot easily follow. The connector layout, and the wiring back to the analyzer were all set once. Changing any of them means revisiting the rack, and the scope of what can practically change afterward is set the day the panel is built.

CABLE TESTER WITH A RECEIVER

A receiver is built around the full range of what the analyzer can be configured to do, not just the test requirements of today. When a program changes, or a test type changes, the receiver has already accounted for it. The DAK and the ITA are elements built to change; swapped or reconfigured as the test requirements move. The receiver, the rack, and the station stay where they are.

ONE RECEIVER, MORE THAN ONE APPROACH

A fixed panel commits a station to one fixturing approach. An ITA does not, because the approach lives in the ITA rather than the rack.

Test cable ITA

The ITA carries a common connector family, and test cables break out to each product. The existing harness library carries forward.



Direct mate ITA

The ITA carries connectors that mate to the product directly, taking test cables out of the station for that application.



Both are ITAs on the same receiver. Building one of each puts both approaches on a single station, swapped in seconds to suit the test application.

BUILT FOR THE EQUIPMENT

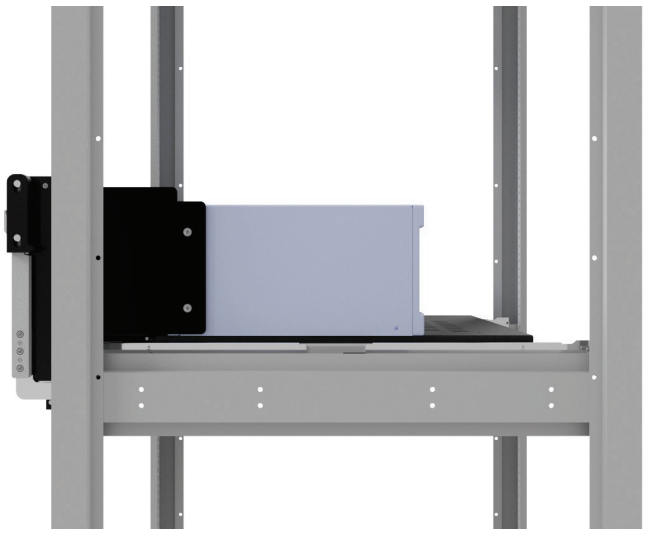
TRACE uses a 13-slot receiver frame. DAKs populate the slots and adapt the receiver to the equipment behind it. The frame and the mating face stay the same across configurations of a given analyzer. The DAK or the ITA is what changes.

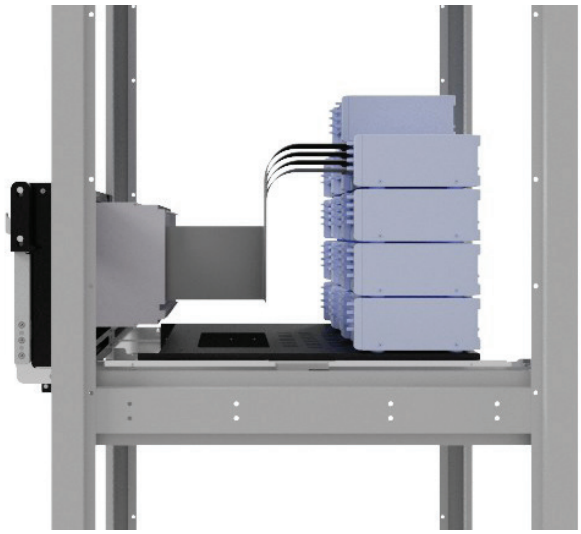
Cirris 8250

DAKs mate directly to the full range analyzer modules, at 64 points per DAK. Twelve slots carry DAKs. The thirteenth slot faces the 8250 controller and does not require a DAK.

Cirris 8100

Each DAK carries a PCB hosting a 1-to-1 connection to each port of the 8100 using four standard COTS ribbon cables. Thirteen slots carry DAKs at 256 points each.





POINT COUNT FOLLOWS THE EQUIPMENT

The receiver does not set point count. The analyzer does. TRACE is configured to the modules installed, and a station that grows adds capacity into open slots. Because the mating face is constant, ITAs and fixturing carry forward.

MAINTENANCE WITHOUT TEARDOWN

Each analyzer test module is served by its own DAK. Two screws at the front of the rack release an individual module in seconds, with no rack teardown and no disturbance to the rest of the station.

That applies to replacement and to reconfiguration. Swapping in a different series of test modules for a particular test is the same two-screw operation.

SPECIFICATIONS

3,328	20,000	13
test points (Cirris 8100)	mating cycles per contact	receiver slots, unlimited configurations

RECEIVER FRAME

Rack Height	7U
Frame Dimensions	19.87" W × 12.25" H × 3" D
Minimum Rack Depth	19" (Cirris 8100 or 8250)

TEST POINTS

Configuration	13 receiver slots, populated via DAKs
Cirris 8100	256 points / DAK: 3,328 total (13 slots)
Cirris 8250	64 points / DAK: 768 total (12 slots)*

DAK COVERAGE

Cirris 8100	Supported
Cirris 8250: Digital I/O	Sinking & Sourcing
Cirris 8250: HV Scanner	Advanced & High Speed
Cirris 8250: Low Voltage Scanner	Supported
Cirris 8250: Flex Point Scanner	Supported

CONTACTS

Contact Size	1 mm, rugged
Current Rating	Up to 5A
Resistance	Up to 22 mΩ
Mating Cycles	20,000+

DIELECTRIC WITHSTAND

Rating	1,500 Vdc / 1,070 Vac
Compatibility	Fully compatible w/Cirris 8250 hi-pot rating

**12 of 13 receiver slots (DAKs) are available for scanner modules; the 13th is reserved for the Cirris 8250 controller.*

WHY MAC PANEL

MAC Panel is a global leader in high-performance interconnect engineered solutions for automated test applications. With nearly 70 years of experience, we partner with aerospace, defense, and commercial test engineering teams to deliver modular, high-density interface solutions that consistently reduce the overall cost and time of testing.

From receivers, ITAs, and DAKs to custom cable assemblies and specialized contacts, every component of our mass interconnect systems is designed and manufactured in the USA. We take responsibility for the entire interface to ensure high reliability across PXI, VXI, and LXI instrumentation platforms so mission-critical programs stay fully supportable over their entire service life.

TRACE brings that proven capability directly to high-density wiring analysis.

By combining our rugged U.S.-manufactured hardware with targeted analyzer integration, TRACE eliminates interface wear, streamlines test changeovers, and delivers long-term repeatability for your most demanding cable and harness test programs.

TRACE

WORK WITH MAC PANEL APPLICATIONS ENGINEERING

Bring us the equipment, the module population, and the harness mix, and we will show you how TRACE configures to your station.

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