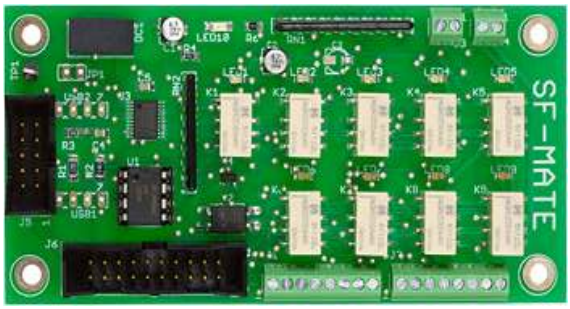
overton INSTRUMENTS

SF-MATE

8 Channel, Short Circuit Measurement Module

USB UNIVERSAL SERIAL BUS



- A flexible, low-cost alternative to traditional ICT test equipment
- Verify “key” test points in <10msec
- 8 DPDT relays isolate measurement
- LED’s indicate on all active relays
- USB interface or embedded control
- Compact size

DESCRIPTION

The SF-MATE (*or Short-Finder*), is a unique test instrument that adds ICT capability to Functional Test equipment. Rather than spending thousands of dollars to test all nodes on a PCB, the SF-MATE limits the number of checks to those defined as “critical” test points. For example, during a typical assembly process, a PCB receives inadvertent “shorts” in the power section. By verifying certain test points are “short free” (prior to applying power to the PCB), the SF-MATE can prevent damage to the DUT, adjoining test equipment and possible injury to the test Operator.

The SF-MATE has 8 input channels that are connected to a special Ohm meter circuit. After a channel is selected, a constant current is supplied to the device-under-test and a voltage is measured that is proportional to the resistance. The Ohm meter limits the current source to 1mA, and the open-circuit voltage is just 200mV (which is less than the nominal turn-on voltage for most PN junctions). When the input exceeds a certain level, the SF-MATE outputs a digital bit that indicates a short .

Many test solutions can be quickly built by connecting the SF-MATE to a PC laptop or desktop, and then running our GUI software. No external power source is required, since power is supplied through the USB interface. Easy access to the hardware is made available through a convenient collection of screw terminal connectors.

SPECIFICATIONS

Relays (K1-K9)	
Relays	9
Relay type	DPDT (Form C)
Coil Voltage	+5Vdc
Nom. Switching Capacity	0.3 A, 125 V AC (Resistive Load) 1 A, 30 VDC (resistive load)
Max. Switching Voltage	110 VDC, 125 VAC
Max. Switching Current	1A
Contact resistance	100mΩ max
Relay lifetime	100,000,000 operations
Actuation time	4ms max operate or release
Short Detector Circuit	
Source voltage	200mV
Max Source Current	1mA
Continuity Threshold	~4 ohms
Short Active	A high, TTL level
General	
Power supply	+5VDC ±10%, 500mA min.
Operating temperature	0 to +70°C
Operating humidity	5% to 95% non-condensing
Dimensions	2.0” x 4.0”
Weight	

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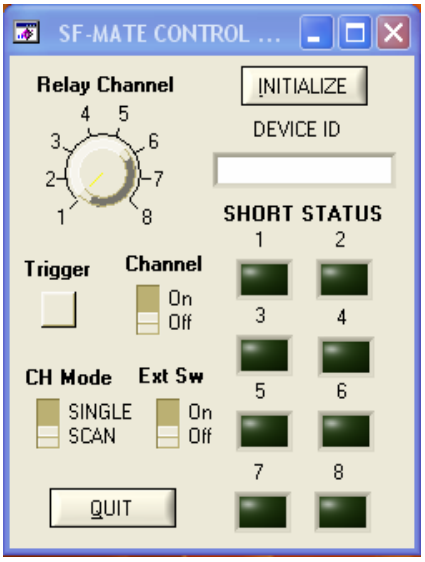
ETS SERIES

The SF-MATE is part of a new-breed of test instruments called the **ETS Series - EMBEDDED TEST SOLUTIONS**. The ETS Series was born out of a determined effort to reduce the high-cost of test. In addition, we built-in many features that enhance the development of custom "automated" test equipment. Like the name implies, the ETS Series' instruments are designed for "embedded" operation. Applications include Mechanical Test Fixtures, Burn-In Test Equipment, custom Desktop Test Instruments and conventional ATE Systems. In each case, the ETS series delivers a whole new level of control performance and cost-efficiency.

CUSTOMER SUPPORT

To ensure our customers receive the maximum benefit our products have to offer, we have prepared an extensive collection of support tools, technical manuals, application notes and programming examples. These items (and more) are conveniently located on our website. In addition, every one of our instrument modules comes with a Virtual Instrument Panel (or GUI). The SF-MATE GUI is presented on the right. It is by far the simplest way to get familiar with our products. Just connect the SF-MATE to a PC (via the USB interface) and run the GUI software.



ORDER INFORMATION

Part No.	Description
ETS-0200-00	SF-MATE, 8-Channel Short Circuit Measurement Module
ETS-0201-00	SF-MATE with USB-MATE, USB Interface Module

OTHER INSTURMENTS

Analog Conversion	
DVM-MATE ETS-0400-00	The DVM-MATE is a complete 4.5 digit, DC Voltmeter that is used to make precise voltage measurements over an extended range. The DVM-MATE has 4 software selectable ranges (±500mV, ±5V, ±50V, and ±500V), and a full scale accuracy of 0.01%.
DAQ-MATE ETS-0800-00	The DAQ-MATE is a high speed 32-channel analog acquisition module. On each channel, the DAQ-MATE can be programmed to acquire either unipolar or bipolar measurements: 0 – 5Vdc, 0 - ±5Vdc, 0 – 10Vdc & 0 - ±10Vdc.
Check-MATE ETS-1800-00	The Check-MATE is complete Data-Acquisition module. The Check-MATE includes a 8-ch 12-bit ADC, a 12-bit DAC and 8-bits of Digital I/O.
Switching Solutions	
Relay-MATE ETS-1300-00	The Relay-MATE offers eight independent channels, FORM-C, 1Amp general purpose relays.
Switch-MATE ETS-1400-00	The Switch-MATE offers eight independent channels, Form-A, 10 Amp general purpose relays.
MUX-MATE ETS-1500-00	The MUX-MATE is a signal switching module. Multiple MUX-MATE's can be "stacked" together and used with the DVM-MATE to form a precision voltage scanning solution.
Digital I/O Modules	
DIO-MATE ETS-0900-00	The DIO-MATE is a basic Digital I/O module that can provide up to 48-bits. All of the 48-bits are fully programmable.
Communications Interface	
COM4-MATE ETS-1100-00	The COM-4MATE (232), is a serial communications expansion module. The COM4-MATE (232), provides up to four, RS-232 com ports to support testing multiple serial devices.
Special Function	
DUT-MATE ETS-0700-00	The DUT-MATE is unique 5-function module that is designed to deliver safe power to the device-under-test.
Signal Counters & Generators	
FC-MATE ETS-0600-00	The FC-MATE is a programmable frequency counter capable of measuring frequencies from 1hz to 100Mhz, with 9-digits of resolution.

FOR MORE INFORMATION

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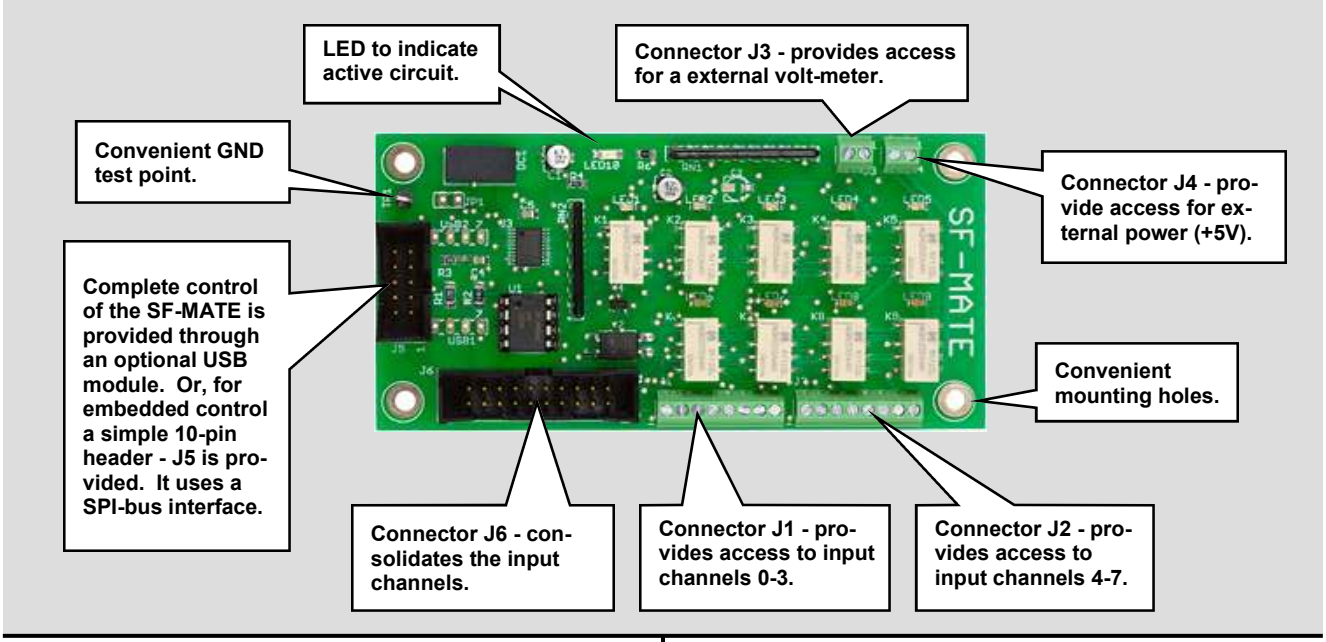
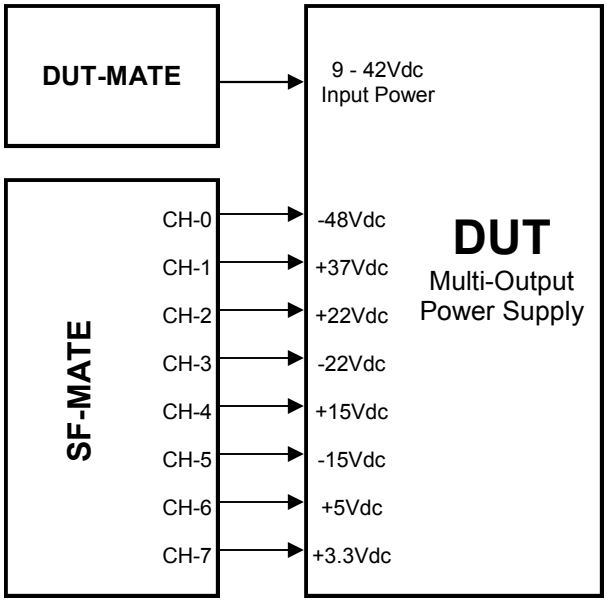


The primary configuration for the SF-MATE is shown in the sample diagram below. The voltage outputs from the DUT are connected to the inputs on the SF-MATE. Before power is applied to the DUT, the SF-MATE scans the inputs to determine a "short" condition. After power is applied, the SF-MATE can be configured to act as a voltage "scanner", and route the DC outputs to an external volt-meter. With a little imagination, the SF-MATE can perform many other tasks (i.e., check voltage references, reset and clock circuits, and mechanical switches).



How economical is it?

When compared to ICT, the SF-MATE is consistently less-expensive (roughly 40-60%). For example, a customer reported paying $15,000 for an ICT fixture and program, which tested a PCB with 500 nodes. That amounts to $30.00 per node. With the SF-MATE the cost-per-node is just $16.00.

How safe is it?

With the SF-MATE, the device-under-test is perfectly safe. The on-board ohm meter circuit limits the current source to 1mA, and the open-circuit voltage is just 200mV (which is less than the nominal turn-on voltage for most PN junctions).

How flexible is it?

The SF-MATE operates in two distinct modes, Short-Finder and Voltage Scanner. The Short-Finder mode generates a TTL 'high' output when a short is detected. The Voltage Scanner mode allows the various input channels to connect to an external voltmeter. Additionally, the SF-MATE can be remotely controlled from a PC (with the USB option). Or standard control takes place through the Oi-Bus interface, which can be driven by our Embedded Test Controller - the Micro-MATE.

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