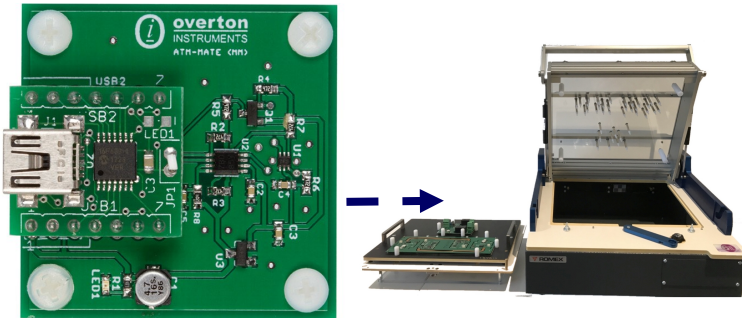# FID-MATE$^{(MM)}$
Fixture ID Module

"The Future of Electronics Test"

Smart Test Fixtures

- *OI Unique SBS™- Single Board Solutions*
- *8 general purpose optocoupler I/O lines (4 inputs & 4 outputs)*
- *Use to support Test Fixture status lines (DUT_Present & Fixture_Ready inputs)*
- *Built-in test fixture cycle counter*
- *Support Pass/Fail status (front panel LED's)*
- *USB interface, 2.0*
- *Compact size (1.50" x 1.50")*

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Description

The FID-MATE$^{(MM)}$ (or Fixture Identification Module), is a unique solution that is designed to accommodate several standard test fixture support functions. First, a typical test fixture often requires the need to detect DUT_Present & Fixture_Ready status bits. The DUT_Present signal indicates the DUT is properly installed on the bed-of-nails platform, and second, the Fixture_Ready signal indicates the over-clamp assembly is active & engaged. The FID-MATE$^{(MM)}$ includes 8 digital I/O lines (4 inputs & 4 outputs). The 4 inputs are used to monitor the DUT_Present & Fixture_Ready signal lines (and the remaining 2 inputs can be used to support Start/Stop switches or an EPO switch). The 4 outputs can be use to drive front-panel status LED's (i.e., Pass/Fail indicators, or general purpose logic control signals).

Where the FID-MATE$^{(MM)}$ got the name, is it's ability to store & retrieve "key" test fixture information such as Fixture Name, Fixture Part Number, Fixture Serial Number, Fixture Asset Number, DUT Name, and the DUT Part Number. Another important number is the Fixture Cycle Counter, which records the number of times the fixture over-clamp opens & closes (which provides an indication as to the health of the spring-probes). Having access to this information gives management a better tool for identifying, tracking and securing the test fixture asset.

The FID-MATE$^{(MM)}$ is powered thru the USB interface, and is driven by an onboard PIC™ controller which receives special commands from the Host PC, then automatically returns the required information. Programming the FID-MATE$^{(MM)}$ is also very simple. It will work with any programming language that supports serial communications (i.e., LabView, LabWindows/CVI, VB, Python and many others). The FID-MATE$^{(MM)}$ is a member of OI's unique collection of Single Board Solutions, SBS™. These products offer hardware test developers a whole new level of integrated test capability with minimal space impact, and all for a very low cost per function.

Specifications

Digital I/O
    I/0 Bits: 8 (4 inputs & 4 outputs)
    Output: 80V@30mA (max)
    Input: 5V@20mA (max)
    Interface: 6 pin input, 6 pin output screw terminals

Input Control
    Interface: USB 2.0
    Protocol: Proprietary ASCII String Commands
    Embedded: Oi-Bus proprietary interface

General
    Power Supply: +5Vdc±10%@30mA
    Operating Temp: 0 to +50ºC
    Dimensions: 1.5" x 1.5" with mounting holes

Applications

- Support Component, Board, Box, & System test
- PCB Functional Test & Burn-in
- Product Life Cycle Test &n Depot Repair
- Hardware Design Validation & Verification
- Custom Product Assembly Equipment
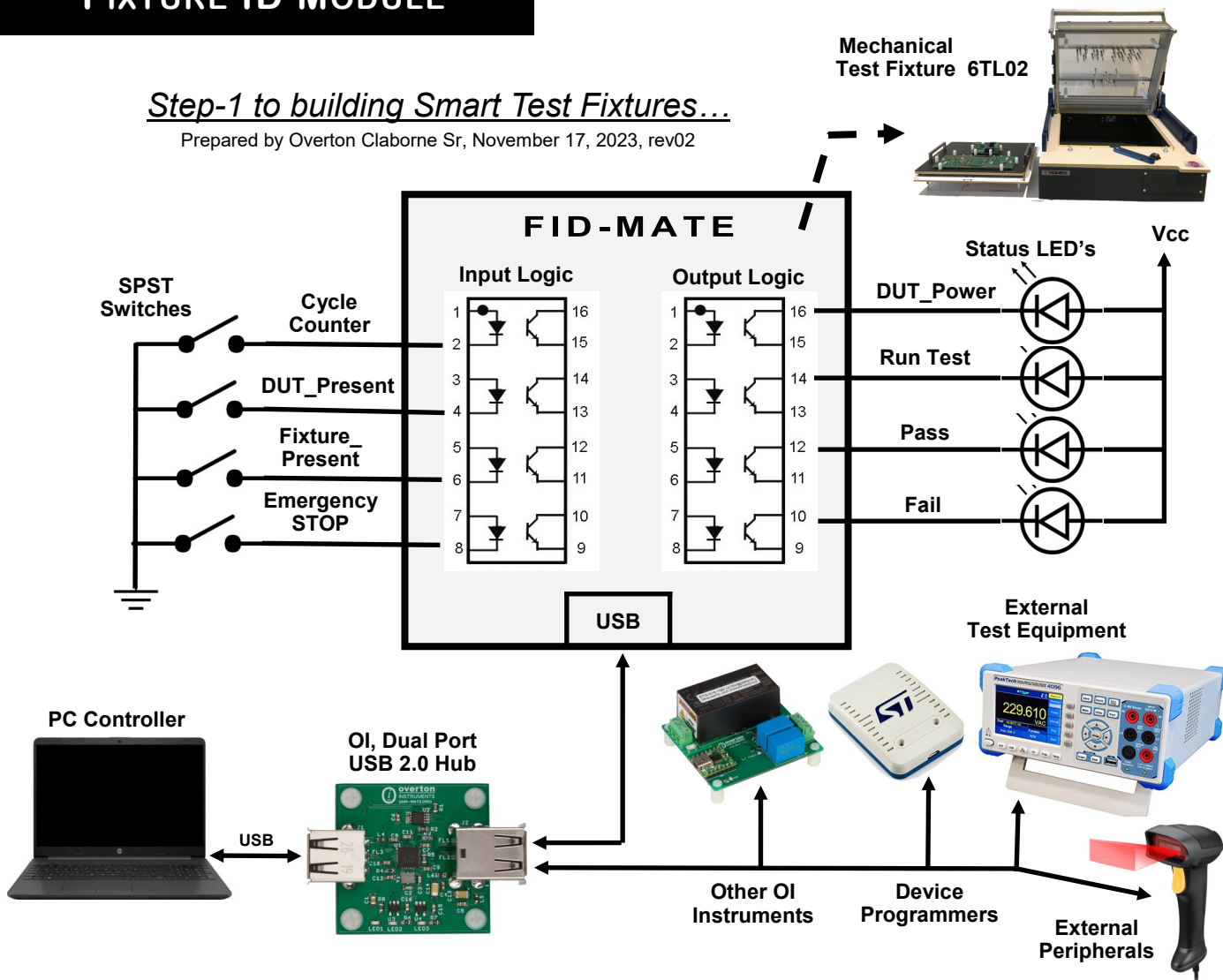
Order Information

Part #	Name
SBS-1260-00	FID-MATE$^{(MM)}$, with USB interface
SBS-1261-00	FID-MATE$^{(MM)}$, with OI-BUS interface

FIXTURE ID MODULE

Step-1 to building Smart Test Fixtures…

Prepared by Overton Claborne Sr, November 17, 2023, rev02

Mechanical Test Fixture 6TL02

FID-MATE

Input Logic

Output Logic

Status LED's

Vcc

SPST Switches

Cycle Counter

DUT_Present

Fixture_Present

Emergency STOP

DUT_Power

Run Test

Pass

Fail

USB

PC Controller

OI, Dual Port USB 2.0 Hub

USB

External Test Equipment

Other OI Instruments

Device Programmers

External Peripherals

The FID-MATE module, is the primary component for building a Smart Test Fixture. In the diagram above, the FID-MATE (digital I/O logic) is configured to support a typical PCB test fixture application.

On the digital input side (left side), the 4-bits are connected to a series of SPST switches (which are mounted inside the test fixture). On the right-side, the 4 output bits are connected to a series of status LED's (which are mounted to the front-panel of the test fixture). Access to the control and status of those I/O bits are easily manipulated by the external PC Controller (via the USB connection).

Like most OI instrument modules, the FID-MATE is driven by a embedded PIC™ controller and a USB bridge chip, which are used to process the serial command strings from the Host PC.

To quickly expand the number of available USB ports, the diagram above shows the use of the UHM-MATE/2 (dual port hub module). This unit allows the Host PC to support direct communications with both the FID-MATE and one other instrument (i.e., a plethora of OI instrument modules, external peripherals, test equipment, device programmers and much more). OI also makes a 4 & 7 port hub module as well (use

these instruments to facilitate the creation of even Smarter Test Fixtures).

Beyond it's ability to support special fixture I/O functions, the FID-MATE is designed to be the grand repository of very important system related information. Thru the USB port, you can store the Fixture Name, Fixture Part Number, Fixture Serial Number and the Fixture Asset Number. Also, you can save the DUT Name and DUT Part Number as well. In addition, you can query the FID-MATE to obtain the cycle count (which can be used to indicate the health of the spring-probes/pogo pins).