

# MTS-3060 SmartCan

## UNIVERSAL O-LEVEL ARMAMENT TESTER FOR SMART & LEGACY SYSTEMS

- Supports both “smart” and legacy weapons
- Supports multiple platforms including F-18, F-16, F-15, TA-50, FA-50, F-5, Hawk, and more
- Support for MIL-STD-1760 “smart” weapons systems
- Simultaneous and continuous monitoring of up to 6 Squib firing circuits
- Audio and video signal generation
- Supports standard operating modes of SERD 75060



## DESCRIPTION

The MTS-3060 SmartCan™ is an advanced flightline tester for suspension and Alternate Mission Equipment (AME) including pylons, launchers, bomb racks, and pods. The MTS-3060 SmartCan™ is a high-performance hand-held device with a shape of a “beercan” but with previously unavailable flight-line test capabilities. The state-of-the-art MTS-3060 SmartCan™ is unlike any other Beercan tester and provides measurement, loading and stimuli functions that are typically associated with large O-Level testers such as the SERD-75501. With multiple measurement channels, dedicated and continuous squib circuit monitoring, multiple load channels, audio and video simulation, and MIL-STD-1760 support, the MTS-3060 can support any platform and any “smart” and legacy armament system.

The MTS-3060 SmartCan™ delivers new flight—line test capabilities and is an ideal O-Level tester for AME and other aircraft systems. The advanced capabilities of the MTS-3060 enable it to bridge the Armament Test Gap that exists on legacy and 5th Gen platforms.

The MTS-3060 is already deployed in 10 countries on multiple platforms and is also used by the U.S. Air Force as a smart weapon simulator for JDAM and AMRAAM.

While providing advanced capabilities in support of new and complex weapons systems, the MTS-3060 maintains full compatibility with Legacy Beercan testers such as the SERD-75060, preserving the substantial investment in the 75060 cables and adapters. New adapters and cables that offer a substantial cost reduction and improved reliability provide a path forward once the current legacy adapters and cables require repair or replacement.



The unique design and features of the MTS-3060 SmartCan™ provide test capabilities that are not typically associated with Beercan testers. Instead of only one or two measurement channels, the MTS-3060 provides more than 30 measurement channels and the capability to simulate legacy and “smart” weapons. The multiple channels alleviate the requirement to use multiple Beercan testers when testing armament systems with multiple squibs (such as MAU-12, MAU-50, LAU-117, etc.). The simultaneous testing of multiple squib signals, combined with a unique cross-fire algorithm, provides a robust test process that is superior to the single-channel or dual-channel methods offered by legacy Beercans. The measurement channels include:

- AC/DC high-voltage measurement channels for up to 400V signals
- DC measurement channels for 4-39VDC with an E-Load capable of loading up to 3.5A per channel
- Squib measurement signals with continuous monitoring (threshold detector) and parametric testing
- Specific measurement channels for grounds
- General-purpose measurement channels for -2V to +50V signals

The MTS-3060 SmartCan™ can generate audio and video signals required to simulate missile functions when testing AGM-65 and AIM-9 systems and provide a more robust test. Two channels of audio and one channel of video can be simultaneously generated.

An innovative power management system allows operation of the SmartCan for over 24 hours without the need to replace the standard AA batteries. This extended operation is achieved using sleep modes and drawing power from the AME when available. With multiple measurement channels internal to the SmartCan, the adapter



## FEATURES



# MTS-3060 SmartCan

cables have been simplified and most do not require any selectors or electronics (as the legacy adapters do).

With a sunlight-readable LCD display and multi-function keys, the MTS-3060 SmartCan™ provides more capabilities, more test instructions and more test information than any other Beercan or O-Level tester.



During tests, the display's background color indicates test status with green denoting a passing test and red denoting a test that failed. The LCD can also display the actual test results of the last test run.

## WEAPONS SIMULATION

The MTS-3060 provides more than the typical Beercan measurement functions. Some weapons systems and especially the newer "smart" weapons will not activate the firing circuits unless a weapon is present. With its weapons simulation capabilities, the MTS-3060 SmartCan™ is the right tool for smart weapons systems testing, delivering a robust test with expanded fault coverage. Weapons simulation features include:

- Simulates major functions of missiles for testing of 16S210, LAU-129, LAU-117, AGM-65, and AIM-120
- Simulates JDAM and AMRAAM for MIL-STD-1760 testing
- Simulates major functions of bombs and rockets for TER-9 and SUU-20 testing
- Simulates major functions of launchers for preload testing

- Simulates major functions for F-16 Internal Gun pickup
- Simulates audio signals including frequency sweep
- Simulates RS-170 Video signal

## BUILT-IN TEST AND SELF-TEST

The MTS-3060 SmartCan™ contains a Built-In-Test (BIT) that provides verification of major circuits. A comprehensive Self-Test verifies the MTS-3060's performance including the cables and adapters using a self-test adapter. BIT and Self-Test can be performed at the flight line or at the back shop, no special external test equipment is required other than the self-test adapter.

## CALIBRATION

The MTS-3060 SmartCan™ employs an innovative calibration technique that further simplifies maintenance and reduces scheduled maintenance down-time and associated logistics. Multiple NIST-traceable, high-precision references have been incorporated into the design of the SmartCan™, and the MTS-3060 verifies its calibration status against these references every time the self-test is performed. In the event the MTS-3060 is out of calibration, the test set initiates an automated calibration procedure that calibrates the MTS-3060 measurement and stimuli devices against the built-in references. The references have to be checked once every 4 years using standard PMEL equipment that can be brought to the field and do not require evacuation of the test set to the depot or the PMEL facility.

## RUGGED CONSTRUCTION

The rugged construction of the MTS-3060 SmartCan™ facilitates field operation anywhere in the world. The MTS-3060's ability to operate in adverse weather conditions makes it the ultimate tool for testing. Additional protection has been included in the MTS-3060 to minimize equipment damage if the SmartCan is dropped by the user. The MTS-3060 is ergonomically designed for ease of use and will not roll when placed on angled surfaces.

## IMPROVED ADAPTERS

While the MTS-3060 supports legacy SERD 75060 adapters, the MTS-3060 can also be provided with new adapters and cables that are more reliable and cost-effective. The design of the MTS-3060 SmartCan™ "relocates" the majority of switching and loads into the SmartCan™, resulting in a streamlined and simplified adapter design for increased reliability.

# MTS-3060 SmartCan

## CONNECTIVITY AND UPGRADABILITY

The MTS-3060 SmartCan™ can connect to external computers, allowing log files for each weapon to be easily moved or copied to a computer for printing and analysis. This feature is especially important when failures occur and the availability of data for further analysis is critical to the timely repair of the aircraft.

The MTS-3060's interface also simplifies firmware updates without the need to ship the test set back to the depot or to the manufacturer. Additional test programs supporting new weapons systems can also be added this way.

## APPLICATIONS

- Flight line armament testing and troubleshooting
- Flight line pre-load testing
- Flight line avionics testing
- Missile/weapon simulation

## COMMERCIAL APPLICATIONS

The MTS-3060C SmartCan™ is an advanced, high-performance, battery-operated, hand-held test set that can be used to support a broad range of field test applications and support test and troubleshooting of electronic systems used in harsh environments.

The MTS-3060C features an LCD display, over 30 integral measurement, loading and stimuli functions, and multiple communications interfaces including Ethernet, USB, RS-232/422/485, CAN Bus, 1553, and more. All functions are controlled by an on-board CPU that can execute complex test procedures developed using the SmartCan software development tools.

The MTS-3060C is extremely rugged and field-qualified, making it the ideal test instrument for any demanding field test application. For additional information, please download the MTS-3060C data sheet.



SmartCan Kit

# MTS-3060 SmartCan

## SPECIFICATIONS

| GENERAL DESCRIPTION                      |   |
|--|---|
| <b>AME and Weapons Systems Supported</b> | 16S210, LAU-7, LAU-127, LAU-128, LAU-129, LAU-117, TER-9, SUU-20, MAU-12, MAU-50, BRU-46, BRU-47, AIM-9, AIM-120, AGM-65, JDAM, F-16 Gun, P4, BRU-57, STAR, BRU-61      |
| <b>Display and Indicators</b>            | Sunlight-readable graphic LCD display with a resolution of 128 x 64 pixels and six different background colors. Individual indicators to support legacy mode operation. |
| <b>Manual Controls</b>                   | 4 soft function keys, easy and intuitive operation  |
| MEASUREMENT CAPABILITIES                 |   |
| <b>High-Voltage Measurement Channels</b> | 3 x AC/DC $\pm 400V$ , 1% accuracy (differential)<br>3 x AC/DC $\pm 400V$ , 1% accuracy (single-ended)  |
| <b>Low-Voltage Measurement Channels</b>  | 14 x AC/DC -2V to +50V, 1% accuracy (single-ended)  |
| <b>Squib Measurement Channels</b>        | 6 channels, switchable 3 $\Omega$ load, 1% accuracy, 10KHz max sample rate per channel. Also routed to a continuous threshold detector                                  |
| <b>E-Load Measurement Channels</b>       | 6 channels, 4 to 39VDC, 1% accuracy, each channel can load 0-3.5A   |
| <b>Ground Measurement Channels</b>       | 3 channels with pull-up/pull-down to verify ground signals  |
| <b>Legacy Measurement Channels</b>       | 4 input pins to support AT, PV, SV, ST, and EED modes of legacy SERD 75060  |
| <b>Resistance Measurement</b>            | Built-in current source provides for resistance measurement on all differential channels  |
| ADDITIONAL CAPABILITIES                  |   |
| <b>1553</b>                              | MIL-STD-1553 support (as R/T for weapons simulation)<br>RS-422<br>USB<br>RS-232<br>CAN-Bus<br>Ethernet  |
| <b>Audio</b>                             | Two channels with selectable voltage and frequency. One channel can provide a frequency sweep of 100Hz to 10KHz   |
| <b>Video</b>                             | RS-170 compatible   |
| <b>Discrete Outputs</b>                  | 4 discrete output channels 28VDC/GND/Open   |
| <b>Cable ID</b>                          | Ability to detect cables and adapters automatically   |

| PHYSICAL AND ENVIRONMENTAL             |  |
|--|--|
| <b>Size</b>                            | Length: 8.25"<br>Diameter of body: 3"<br>Front/Rear panel: 3.5" x 3.5"                             |
| <b>Weight</b>                          | SmartCan: 4.2lb<br>SmartCan Kit: (1 SmartCan, adapters, cables, self-test adapter, and case): 35lb |
| <b>Operating Temperature</b>           | -20°C (-4°F) to +57°C (+135°F)   |
| <b>Storage Temperature</b>             | -51°C (-60°F) to 71°C (+160°F)   |
| <b>Maximum Relative Humidity Range</b> | 95%  |
| <b>Salt Fog</b>                        | Per MIL-PRF-28800F Class 2   |
| <b>EMI</b>                             | MIL-STD-461F   |
| <b>Shock</b>                           | 5 ft drop onto concrete  |
| <b>Vibration (Random)</b>              | Per MIL-PRF-28800F Class 1   |
| <b>Loose Cargo</b>                     | Per MIL-PRF-28800F Class 2   |
| <b>Transit Drop</b>                    | Per MIL-PRF-28800F Class 2   |
| <b>Explosive Atmosphere</b>            | Per MIL-PRF-28800F Class 1   |
| <b>Maximum Altitude</b>                | Operating: 15,000 ft<br>Storage: 40,000 ft   |
| <b>National Stock Number</b>           | 4920-01-603-7105   |

Note: Specifications are subject to change without notice

## ORDERING INFORMATION

|                  |   |
|------------------|---|
| <b>MTS-3060</b>  | Universal O-Level Aircraft Armament Tester for Smart & Legacy Weapons Systems |
| <b>MTS-3060C</b> | Handheld Portable Test Set for Field Test Applications                        |