Technical Brief

Scepter Enterprise Mobile Computer

The Scepter is the latest innovation in barcode scanning mobile computing, combining contemporary technology with a proven, ergonomically sound industrial design. Powered by Android and fitted with the largest display in the industry, for non-tablet devices, the Scepter delivers on all fronts…performance, reliability, and affordability.

Product Life

The Scepter was specifically designed for industrial applications in environments where users expect to get several years of productive use out of their mobile computers. By using industrial-grade components with long production life cycles, the Scepter will remain a mainstay of the AML product line for many years to come.

Consumer-grade devices, or even commercial devices based on consumer designs, use components with short production life cycles because the consumer market changes so rapidly and has much more of a "throw-away" mentality. However, savvy IT professionals understand the true impact of total cost-of-ownership and want mobile devices that can stay in service for 5 years, 10 years, or even longer. The target market for the Scepter is the enterprise industrial user, and while some enhancements may be incorporated over time, the same form, fit and function will be maintained over the life of the product.

Display

The 5" display is the largest display available on a non-tablet, barcode scanning mobile computer. Bigger displays mean more information available to the user without having to navigate to the next screen. It means being able to show images, messages or virtual keys without covering up critical task data.

With a resolution of 480 x 800 and a brightness of 550 nits, the Scepter's display is highly visible indoors or out. The multi-touch, capacitive touchscreen is optically bonded to the tempered glass of the display giving it an even higher degree of durability. The display is surrounded by a protective rubber boot and is in fact "floating" and never actually touches the case of the device.

Tactile Keypad

With such a large display, one might argue that a tactile keyboard isn't necessary. However, the demands of industrial applications dictate that not only are tactile keyboards necessary, but highlight the fact that touchscreen keyboards are inherently more error-prone, despite the marketing efforts to convince otherwise.

Predictive text software, also known as "auto-correct software", was developed because typing on capacitive touchscreens is inherently more error-prone, and the very fact that such software even exists is a testament to that fact.

Part numbers, location designators, and quantities are not part of any auto-correct software libraries, therefore auto-correct software has limited effectiveness in industrial applications.

Touchscreen-only devices add extra downtime when the user has to continually monitor the screen to confirm an accurate entry. A traditional tactile keypad allows you to feel the separation of the keys so you know you're typing in the correct keys from the start. While ergonomically it may be slower than sliding a finger across a capacitive touchscreen, a tactile keypad will produce fewer errors, and fewer corrections, when typing non-predictable text.

Operating System

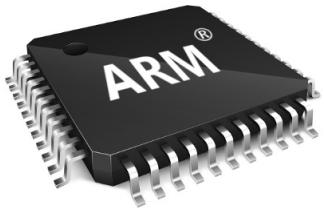
From its first day on the drawing board, the Scepter was always going to be an Android device. Given the current status of other competitive embedded operating systems, it was an easy choice made even easier when one sees the unending list of software developers and application providers that are offering more and more Android products.

Power

The Scepter utilizes two lithium-ion batteries during operation. Its primary power source is a 24.8 watt-hour battery. More specifically, it is a 7.4 VDC battery with a capacity of 3.35 Ah. Simply multiplying the 7.4 volts by the 3.35 amp-hours gives us the 24.8 watt-hour rating, which is the best way to compare battery capacity values. At 24.8 watt-hours, the Scepter has the highest capacity battery for its class of mobile computers.

The Scepter also utilizes a backup battery which has a capacity of 3 watt-hours. Its sole purpose is to keep the Scepter on and active while the main battery is being replaced. During this process of replacing the main battery, the backlight for the display will turn off as soon as the battery is removed from its compartment. This will give the perception that the unit has powered down, but it has not. The processor is still running, the radio is still connected, and the backlight will come back on as soon as a fresh battery is inserted into the battery compartment. The user will be able to pick right up where they left off once the battery has been replaced. The backup battery charges off of the main battery unless the main battery falls below 50% of its capacity.

Architecture



Powering the Android operating system is a 1 GHz Quad-Core ARM processor, supported with 1GB of RAM and 4GB eMMC internal storage. Users can also add an SDXC memory card for additional storage.

Environmental

Designed specifically for industrial applications, the Scepter can take a beating. The housing is made from a specifically selected and formulated polycarbonate plastic, for enhanced impact durability across a wide range of temperatures. Conservatively, the Scepter is warranted for a 6 foot (1.8 meters) drop to concrete, on any side. Its IP65 ingress protection rating means that it is completely sealed and protected from dust, and can take water spray from low-pressure jets coming from any direction.

Barcode Scanning

The ability to scan barcodes quickly and accurately is inherent to the core purpose of the Scepter, but not all barcode data collection requirements are the same. Scan distances and barcode types vary, which is why the Scepter can be equipped with a wide range of barcode scanners with different performance characteristics. Mid-range scanning, Near/Far scanning, 2D imaging, and 1D scanning are all easily accomplished by selecting the right scan engine for the task.

Communications

A Laird radio provides both dual band 802.11 abgn Wi-Fi functionality as well as BLE 4.0 Dual Mode Bluetooth capability.

When inserted in the single position cradle, the Scepter makes available both a USB host port and a USB client port.

Peripherals

No more dark corners of the warehouse or using a smartphone as a flashlight. Integrated into the Scepter is a dual-beam flashlight that is operated by depressing the button below the scan trigger on the pistol grip version of the Scepter.

The Scepter also offers an optional autofocusing 5MP camera with a separate, integrated flash. The display acts as the viewfinder.

An audio speaker is located just below the keypad and a headphone/microphone jack is located on the right-hand edge of the device, just below the power button.

Accessories

There are multiple charging accessories available for the Scepter.

A single-position charging cradle secures the device while charging its battery, and also charges a spare battery. While in the cradle, a USB Host port and a USB client port are also available. (ACC-7825)

A four-position charging cradle is available that will secure four Scepters and charge their batteries simultaneously. This particular cradle does not accommodate spare batteries, and while it does offer USB Host and USB Client ports, they are only available on the device seated in the right-hand position of the cradle. (ACC-7835)

A four-position battery charger is available for charging four batteries simultaneously for those multi-shift environments where the Scepter is not left in a cradle long enough to charge its battery.

Applications

In addition to the standard Android features, AML provides an easy to use lockdown launcher and a cloning utility.

The AML Lockdown can be used to replace the standard Android desktop environment with a restricted one, allowing administrators to whitelist which applications their users can access without giving access to other applications or system settings. It also has the ability to auto launch applications on bootup.

Made In America

The Scepter is engineered, manufactured, and serviced in Dallas, Texas. This puts all of our knowledge base for the Scepter under one roof, allowing us to be more responsive to the needs of our customers. We have better control of our supply chain, better control of our quality, and a much higher degree of flexibility when it comes to product enhancements, modifications, or even customization.

Scepter Specifications	
Processor	Quad Core processor 1GHz
Operating System	Android 6.0.1 (Marshmallow)
Display	5.0" - 480 x 800 TFT LCD Projected Capacitive Multi-touch, optically bonded tempered glass. 550+ NIT Backlight. (Sunlight readable)
Memory (RAM)	1GB Dual Channel DDR3L
Internal Storage	4GB eMMC
Removable Storage	UHS-1 SDXC CARD
Graphics	Integrated Vivante video graphic subsystem
Keypad	Alphanumeric tactile feedback - backlit, 47 keys
Trigger	Dual Trigger Design (Scan Engine / Flashlight)
Audio	Built-in 1W Speaker Headphone/Mic port (3.5mm standard CTIA Phone Jack)
WLAN	802.11abgn Dual Band (2.4GHz / 5GHz), 2x2 MIMO
WPAN	BLE 4.0 Dual Mode

Scepter Specifications

Barcode Scanner	1D Laser; Near/Far 1D Laser; 2D Imager; Near/Far 2D Imager
Camera	5MP with Autofocus
Main Battery	24.8 Watt-hour Lithium-Ion
Backup Battery	3 Watt-hour Lithium-Ion
Sensors	• Ambient Light sensor • Accelerometer • Haptic Feedback • LED Flashlight
Cradle Port	• Charge/Power Device • USB Host • USB Client
Dimensions	9.5" x 4" x 6.9" (242mm x 101mm x 176mm)
Weight	24oz (680g)
Operating Temperature	-20° C to 50° C / -4° F to 122° F
Drop Rating	6 Feet / 1.829 Meters
Sealing	IP65