



# M3 ORANGE

Fully Rugged Industrial PDA with  
the BEST Data Capture Technology – 1D, 2D, RFID (HF, UHF)



## Full Featured Functionality

M3 ORANGE boasts enhanced hardware and OS. The latest version of operating system, Windows Mobile 6.5, provides highly intuitive graphical user interface and new features. Its design has also been evolved to give more refined and compact look by applying antenna and finished in sharp black. Furthermore, front panel scan button in both alpha-numeric and QWERTY keypads, and battery endurance for tough environment upgrades the work efficiency and satisfaction.

## Key Features

### Powerful System and Core



#### Windows Mobile 6.5

Windows Mobile 6.5 operating system provides new today screen and faster speed of response time of touch screen. Also, its scrolling display is very finger-friendly to use work applications.



#### Marvell PXA-320 806MHz

Powerful CPU speed with "High-Tier" guarantees faster graphic process and memory access.

### Most Rugged and Tough



#### IP 65 Sealing, 1.5m Drop (Ingress Protection, Drop to steel surface)

M3 ORANGE is suitable to use in a tough environment; withstands drop from 1.5m and protects against dust and water.



#### Battery

(Li-Ion 3.7V 3,300mA)

M3 ORANGE's smart battery provides accurate remaining battery capacity so that the user can efficiently plan the usage of the PDA. Also, its large capacity is suitable for long time shifts.

### Maximum Data Capture



#### 1D / 2D / RFID (HF/UHF)

Superior scanner / RFID application provides real-time data capture and automatic data processing so that you can expect flexibility of work and cost-efficiency.



#### 3.0M Pixels AF Camera

High resolution and auto focused functionality capture clear images of product and/or documentation.

### Maximum Mobility and Comfort



#### Multi-mode Radio

(802.11 a/b/g, Bluetooth, 3G(HSDPA))

Wireless data transmission through Summit WLAN and Bluetooth make your business easier and more comfortable.



#### Multi-function Keypads

Multi-functional keys of QWERTY, AZERTY keypad are designed for versatile performance. As hot keys, these are going to make the direct access be possible and increase users' working speed.

# Handheld Computer Categories

M3 Mobile Co., Ltd. provides industrial level of handheld computers in four main categories.

## STANDARD

- ◆ Slim and light design but withstands IP65 and at least 1.5 meters of drop to steel surface.



## SMART

- ◆ Ultra light weight and compact design maximize the mobility.



## ULTRA

- ◆ Widely used in tough environment and longer range of scanning is required.



## POS

- ◆ Point of sale devices, as its name suggests, supports payment system with integrated printer.



## M3 ORANGE is:

■ **STANDARD**

■ SMART

■ ULTRA

■ POS

STANDARD is one of the most common device type found in various industries. In fact, STANDARD type PDA can be used in all business. See next page for applicable industry.

## Applicable Area



**Logistics** – Parcel Delivery, 3PL, Credit Card Delivery, etc

In this industry PDA is used to send/receive postal information from the main system or server. Also, administrator can see the delivery status and vehicle position in real time. Thus, provides effective, fast and accurate delivery service is achieved. For global references, click [here](#).

### Key Benefits

- ✓ Accurate delivery services.
- ✓ Real time information update with accurate vehicle positions.
- ✓ Advanced wireless technology such as 3G (HSDPA), A-GPS, 802.11a/b/g saves time and no more paper work is required.



**Food & Beverage** – Snack, Bakery, Beverage, Frozen Food, etc

Food & Beverage industry requires fast and accurate delivery as well as stock management. PDA is connected to a vehicle temperature sensor while delivering to monitor the temperature of the freezer since the temperature is one of the most important factors to keep the product in good quality. Also, computerized system prevents over stocking or under stocking. For global references, click [here](#).

### Key Benefits

- ✓ Product stock management.
- ✓ Quality control became easy with keep monitoring the freezer temperature.
- ✓ Various features and accessories allow connection with other equipment: Bluetooth, RS232 serial, RJ10 Ethernet.



**Public** – Meter Reading, Ticket Checks, Police, Military, Hospitality, etc

M3's STANDARD PADs are widely used in public industry. 1D/2D/Camera AutoID system allows user to scan the barcode of electric, hydraulic, gas and/or car parking meter to obtain current usage status and the picture is taken using the camera as the evidence of the meter status. Also, with connection to BT printer, invoices (or fine ticket) can be issued on site. For global references, click [here](#).

### Key Benefits

- ✓ Fast and accurate data collection.
- ✓ Invoices issued on site with BT printer.
- ✓ Time saving and efficient.



**Distribution** – Department Store, Mart, Retail, Warehouse, etc

In Distribution industry, stock management is the key point. Before PDA is adopted in this industry, the manager usually performed stock counting once a month which is time consuming and may induce human error. However, with barcode or RFID system, the number of in, out, remaining stock is easily managed. Also, the PDA can be used to check the price of a product on the shelf. For global references, click [here](#).

### Key Benefits

- ✓ Time and cost effective.
- ✓ Convenient and accurate stock management.
- ✓ Stocks in each branch can be controlled at headquarter.

More details of M3 ORANGE and relevant casestudy documents can be found at the homepage. [www.m3mobile.net](http://www.m3mobile.net).



## Accessories

M3 ORANGE provides extra accessories in addition to the standard accessories enhance the PDA's functionality and broaden its applicable area. Its wide range of extra accessories will make M3 ORANGE to be suitable virtually in any environment.

### Cradles



<Single Slot Ethernet Cradle>



<Vehicle Cradle>

M3 ORANGE has various types of cradle for charging and DataSync. Besides the basic Single Slot Cradle, Single Slot Ethernet Cradle can be used for Ethernet and Vehicle Cradle is for charging M3 ORANGE device in the car. And GPS function can also be used while charging the device through

the optional GPS.

### Pistol Grip



Optional pistol grip is for scan-intensive environments. This handy equipment will improve your ergonomics and increase your satisfaction.

Snap-on provides almost the same functions of cradle but is optimized for using field environment.

### Snap-On



### Other Useful Accessories



<Charging Holster>



<Leather Case>

There are other accessories; Charging Holster and Leather Case for M3 ORANGE.

Charging holster is a portable battery charger which is best solution for field service area.

To be handy for carrying and protect M3 ORANGE from any circumstances, a leather case will be

a good solution. Users can choose belt type or strap type with this optional accessory.

# M3 ORANGE Specification

Physical Characteristics		Electrostatic Discharge (ESD)	±8kV air discharge
Dimension (W x H x D) mm/inch	78.6 x 166.2 x 24.9 mm	<b>Wireless Radio Options</b>	
	78.6 x 165.5 x 40.2 mm(With HF)		
	78.6 x 165.5 x 39.8 mm(With UHF)		
	3.0 x 6.5 x 0.9 in.		
Weight (including battery)	3.0 x 6.5 x 1.5 in.(With HF)	WWAN	<b>2G</b> GSM/GPRS/EDGE: Quad band (850/900/1800/1900 MHz)
	3.0 x 6.5 x 1.56 in.(With UHF)		<b>3G</b> UMTS/HSDPA: Triple band (850/1900/2100 MHz)
		GPS (optional AGPS) <sup>1</sup> All SV @ -130 dBm	<b>Assisted-GPS</b>
Display	3.5" QVGA TFT LCD, 240 x 320 pixels		Accuracy <sup>1</sup> Position 2.5m CEP
Touch Panel	Glass analog resistive touch		SBAS 2.0m CEP
Main Battery	Li-ion, 3.7 V, 3,300 mAh Smart battery		Acquisition <sup>1</sup> Cold start 29s
Backup Battery	Li-ion, 3.7 V, 200 mAh (not user-accessible)	Bluetooth	Warm start 29s
Notification	Vibration and LED		Hot start <1s
Keypads	Alphanumeric (31key) QWERTY (50key) AZERTY (50key)	Velocity Limits: 515m/s(1000knot)	
Performance Characteristics		Wireless LAN Characteristics	
Multi-processor	CPU Marvell PXA-320 806MHz	WLAN	IEEE 802.11 a/b/g
	Radio ARM9 series	Chipset	Atheros AR6002
OS	Microsoft® Windows Mobile® 6.5 Classic and Professional	Data Rates	802.11a (OFDM): 6, 9, 12, 18, 36, 48, 54 Mbps
Memory	RAM 256 MB		802.11b (DSSS): 1, 2, 5.5, 11 Mbps
	ROM 1 GB	Reg. Domain <sup>2</sup> Part of the region.	802.11g (OFDM): 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Card Slot MicroSD with SDHC(up to 32 GB)		FCC (Americas, Asia <sup>2</sup> , Mid East <sup>2</sup> ) ETSI (Europe, Mid. East, Africa, Asia <sup>2</sup> ) MIC (formerly TELEC) (Japan) KC (formerly KCC) (Korea)
Interface	USB Host 1.1 / Client 1.1, Ethernet (via Cradle or Snap-On), RS232 (via Cradle or Snap-On),	Frequency Bands	<b>2.4 GHz Freq. Bands</b> FCC: 2.4 to 2.473 GHz ETSI: 2.4 to 2.483 GHz MIC: 2.4 to 2.495 GHz KC: 2.4 to 2.483 GHz
Battery Performance	Standby time: 240 hours Talk time: 6 hours		<b>5 GHz Freq. Bands</b> FCC: 5.15 to 5.35 GHz 5.725 to 5.82 GHz ETSI: 5.15 to 5.35 GHz 5.47 to 5.725 GHz MIC: 5.15 to 5.35 GHz KC: 5.15 to 5.25 GHz 5.47 to 5.725 GHz 5.725 to 5.82 GHz
User Environment		Operating Channels	<b>2.4 GHz Channels</b> FCC: 11 (3 non-overlapping) ETSI: 13 (3 non-overlapping) MIC: 14 (4 non-overlapping) KC: 13 (3 non-overlapping)
Operating Temp	-20 °C ~ 50 °C / -4 °F ~ 122 °F		<b>5 GHz Channels</b> FCC: 23 non-overlapping ETSI: 19 non-overlapping MIC: 8 non-overlapping KC: 8 non-overlapping
Storing Temp.	-30 °C ~ 70 °C / -22 °F ~ 158 °F		
Humidity	93% non-condensing		
Drop test	12 drops at 1.5m / 5ft. to steel surface. (2 drops for each side)		
IP rating	IP65		
Clock	Integrated real time clock (Backup battery keeps time info while replacing the main battery)		

Security	<b>Standards:</b> WEP, WPA, WPA2  <b>Encryption:</b> WEP, TKIP, AES  <b>Encryption Key Provisioning:</b> Static (40 and 128 bit length) Pre-Shared (PSK) Dynamic
	<b>802.1X Extensible Authentication Protocol Types:</b> EAP-FAST, EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, PEAP-TLS, LEAP
Certifications	<b>Wi-Fi Alliance:</b> 802.11a, 802.11b, 802.11g WPA Enterprise WPA2 Enterprise  <b>Cisco Compatible Extensions</b> CCXv4

## Data Capture Characteristics

1D Scanner <sup>3</sup> Characteristic	
Light Source	650 nm visible laser diode
Scan Rate	100 scans/sec
Decode Rate	100 decodes/sec
Reading Angle	54°, effective 44 °
Pitch Angle	±35 °
Skew Angle	+8- +50 °, -8--50 °
Tilt Angle	±20 °
Ambient fluorescent light rejection 4,000 lux max.	
Ambient white light rejection 4,000 lux max.	
Ambient direct sun light rejection 80,000 lux max.	
Laser Safety Class	IEC825, Class I laser product
EMC	EN 55022, EN 55024

<sup>3</sup> Characteristics are based on the default option.

2D Imager <sup>3</sup> Characteristic	
Focal Point	17.8cm / 7in.
Image Sensor	752 x 480 CMOS sensor
Motion Tolerance	10.2cm / 4in. per second
Rotational Sensitivity	360°
Viewing Angle	±40 °

Ambient Light	Total darkness to 100,000 lux (full sunlight)
Illumination LEDs	626nm ±30nm
Aiming	LEDs: 526nm ±30nm Laser: 650nm ±10nm

## Camera Characteristics

Resolution	3 megapixel (2048 x 1536)
Flash	User controllable flash
Focus	Auto focus
Lens Size	1/4"
Lens Chief Ray Angle	25° non-linear

## High Frequency RFID

Frequency	13.56 MHz
Supported Standards	ISO14443A, ISO14443B, ISO15693, I-CODE
Supported Tag-ICs	Mifare® Standard, Mifare® 4k, Mifare® ProX, Mifare® Utralight, Mifare® DESfire, Mifare® Mini, SLE66CLX320P, SLE55R04/08, Smart MX, Jewel, Topaz,  SLE6666CL160S, SR176, SLIX4k, ASK GTML2 ISO, ASK GTML, Sharp B, TOSMART P0032/64  EM4135, ICode® SLI, LRI12, LRI64, LRI128, LRI2k, SRF55VxxP, SRF55VxxS, Tag-It™ HF-I Std, Tag-It™ HF-I Pro, TempSense  ICode®, ICode® EPC, ICode® UID

## Ultra High Frequency RFID

Frequency	902 ~ 928 MHz (FCC part 15) 865.600 ~ 867.600 MHz (ETSI EN 302 208)
Frequency Tolerance	±10 ppm over the entire temperature range
Number of Channels	4 channels (compliant to ETSI EN 302 208 v1.2.1)  50 hopping channels (compliant to FCC part 15.247)  All subsets of 902~928 MHz band are supported.
Standard Compliance	EPC C1G2 [RD3]



## Supported High Frequency RFID tags

Tag	Manufacturer	Serial Number	Read/Write operation	Transfer command	Comments
ISO 14443 A					
MIFARE® Standard	NXP	✓	✓	✓	
MIFARE® 4k	NXP	✓	✓	✓	
MIFARE® Ultralight	NXP	✓	✓	✓	
MIFARE® ProX	NXP	✓	✓	✓	
MIFARE® DESFire	NXP	✓	-	✓	
MIFARE® Mini	NXP	✓	✓	✓	
SLE66CLX320P	Infineon	✓	-	✓	Encryption not included
SLE 55R04 / 08	Infineon	✓	-	✓	Encryption included
Smart MX	NXP	✓	-	✓	
Jewel	Innovision	✓	✓	✓	
Topaz	Innovision	✓	✓	✓	
ISO 14443 B					
SLE6666CL 160S	Infineon	✓	-	✓	
SR176	STM	✓	✓	✓	
SLIX 4K	STM	✓	✓	✓	
ASK GTML2 ISO	ASK	✓	-	✓	
ASK GTML	ASK	✓	-	✓	Extended setup needed
Sharp B	Sharp	✓	-	✓	
TOSMART P0032/64	Toshiba	✓	-	✓	
Dual Interface					
ISO 14443 A compliant	Various	✓	-	✓	
ISO 14443 B compliant	Various	✓	-	✓	
ISO 15693					
EM 4135	EM	✓	✓	✓	
ICODE® SLI	NXP	✓	✓	✓	
LRI12	STM	✓	✓	✓	
LRI64	STM	✓	✓	✓	With 10% modulation index
LRI128	STM	✓	✓	✓	
LRI2k	STM	✓	✓	✓	Better performance with 10% modulation index
SRF55VxxP	Infineon	✓	✓	✓	
SRF55VxxS	Infineon	✓	✓	✓	Encryption included
Tag-it™ HF-I Std	TI	✓	✓	✓	
Tag-it™ HF-I Pro	TI	-	-	✓	Only in addressed mode
TempSense	KSW	✓	-	✓	Temperature logging
ICODE					
ICODE®	NXP	✓	✓	✓	
ICODE® EPC	NXP	✓	✓	✓	
ICODE® UID	NXP	✓	✓	✓	



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