

# M01 行車紀錄終端機

## 產品規格



### 全方位衛星定位無線通訊車載終端

MW-系列產品，具備強大的資料處理以及優越的通訊控制能力，可運用在交通工具（如公車、商用運輸車、計程車）的派遣調度、資訊交換、與運算控制上。輕鬆管理與控制車上設備，達到降低營運成本及提升企業競爭力。

### CPU

| item                 | Model                | Spec.    | Comments                |
|----------------------|----------------------|----------|-------------------------|
| CPU                  | ARM 32-bit Cortex-M3 | 120MHz   | 256 KB Flash, 64 KB RAM |
| Flash Memory         | SD Slot              | 2G Bytes | SD Memory Card          |
|                      | On Board             | 2M Bytes |                         |
| Configuration Memory | EEPROM               | 64Kb     |                         |

### Environmental

| item                  | Spec.                   | Comments                      |
|-----------------------|-------------------------|-------------------------------|
| Dimension             | 184 x 90 x25 mm         |                               |
| Operating Temperature | -20° C to 60° C         | w/ industrial Telecomm module |
| Storage Temperature   | -40° C to 85° C         |                               |
| Operating Humidity    | 5 ~ 95%, Non-condensing |                               |
| Certification         | CE                      |                               |

### Basic I/O

| Functions        | # | IO PINs   | Comments   |
|------------------|---|-----------|--|
| Digital Out      | 3 |           | Active-Low, Open-Drain, 250mA Max Sink<br>* can support dry contact if ODM specified |
| Digital In       | 8 |           | Hi Level: 9~28Vdc<br>Lo Level: <1.5Vdc   |
| RS232            | 6 | TX,RX,GND | TX,RX,GND (include 1 port RS232/485 selectable)                                      |
| USB              | 2 |           |  |
| Reset Button     | 1 |           |  |
| GPS Antenna      | 1 | SMA       | External antenna   |
| Telecomm Antenna | 1 | SMA       | External antenna   |

### 功能特性

- ◆支援全球 850/900/1800/1900MHz 4G/LTE電信系統。
- ◆內建高靈敏度 GPS 模組，可同時搜尋32顆衛星訊號。
- ◆4 組 RS232 介面，可規劃連接多種外部週邊。
- ◆內含車規等級突波吸收元件，保護電源線路。
- ◆內建 watch dog，確保設備無當機之虞。
- ◆寬限電源穩壓電路設計，容許車輛之不穩定電壓。
- ◆可透過 OTA方式進行韌體升級，以及更改參數設定。

### 應用實例

- ◆貨物配送追蹤系統
- ◆車流偵測監測系統
- ◆智慧交控系統
- ◆公車動態資訊系統
- ◆計程車調度派遣系統
- ◆商務車運輸管理系統

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### Power

| Functions      | IO PINs         | Comments                     |
|----------------|-----------------|------------------------------|
| B+(battery)    | BatCar, BatGnd  | 9 ~ 36V (max. 6V ~ 48Vdc)    |
| Acc            | AccCar, AccGnd  | 9 ~ 36V                      |
| Backup Battery | Polymer Battery | Optional (1050mAh / 1950mAh) |

### System Indicator

| Functions    | #      | Comments   |
|--------------|--------|--|
| Power LED    | Orange | Blink when ACC Off, stable when ACC On               |
| GPS LED      | Blue   | Blink when GPS Active, stable when GPS Valid         |
| Telecomm LED | Green  | Long blink when Power on, short blink when connected |

### Telecom Module

| Item   | Spec   |
|--|--|
| Frequency                                      | LTE FDD: B1/B3/B5/B7/B8/B20<br>WCDMA: B1/B5/B8<br>GSM: B3/B8   |
| Transmit Power                                 | Class 3 (23dBm±2dB) for LTE FDD<br>Class 3 (23dBm±2dB) for LTE TDD<br>Class 3 (24dBm+1/-3dB) for UMTS<br>Class E2 (27dBm±3dB) for EDGE 850/900MHz Class E2 (26dBm+3/-4dB) for EDGE 1800/1900MHz Class 4 (33dBm±2dB) for GSM 850/900MHz<br>Class 1 (30dBm±2dB) for GSM 1800/1900MHz |
| DC-HSPA+/LET Feature<br>3GPP E-UTRA Release 11 | Cat 1 DL 10Mbps/UL 5Mbps, DL 42Mbps/UL 5.76Mbps<br>HSDPA Cat.8 / HSUPA Cat.6 data rates<br>Compressed mode (CM) supported according to 3GPP TS27.007   |
| Power  | DC3.3~4.5V   |

### GPS Module

| Item                          | Spec  |
|-------------------------------|---|
| Module                        | u-blox 6010                                       |
| Frequency                     | L1 1575.42MHz, C/A code                           |
| Support channel               | 32  |
| Fast TTFF at low signal level | Hot start < 1s<br>Cold Start < 35s                |
| Sensitivity (acq)             | -159dBm (Tracking)                                |
| Accuracy                      | <10M (2D RMS) / Autonomous<br><5M (2D RMS) / SBAS |
| Protocol                      | NMEA 0183 (ASCII)                                 |
| Map Datum                     | WGS-84  |
| DGPS                          | Supported   |
| Antenna                       | External 3.3V                                     |