Intelligent industrial modem

Lantronix Mobility Solutions M110 modems are designed to provide connectivity across a broad range of M2M and IoT applications. They allow Internet connectivity via serial port to PLCs, Meters, Vending Machines. They help transporting data from any industrial device to data control servers, allowing businesses to benefit from real-time data monitoring, management and control.

AVAILABLE IN 2G, 3G, NB-IoT, LTE-M1, LTE CAT. 1

TWO VERSATILE I/OS

LAST GASP
(factory option)

MPACK SOFTWARE
with Workbench configuration tool

SNAP CAP™
Snappily converts M110 series’ RS-232 port on a 9-pin sub-D connector into an isolated*, half- or full-duplex (user-selectable via a slide switch) RS-485 port on a 5-pin, 3.5 mm pitch, COMBICON connector.

* i.e. with integrated transformer, thus allowing for 1.5 km-long cabling

D2SPHERE™ device management services let you monitor, diagnose, control and update your Lantronix Mobility Solutions devices. Information such as signal strength, geographic location, battery state, temperature, device firmware and software versions can be remotely monitored, stored and presented to help you to manage quality of service and prevent downtime.
M110 SERIES SPECIFICATIONS

HARDWARE

Material
Brushed aluminium alloy

Dimensions (mm)
60 x 66 x 21 without connectors

Weight (g)
Approx. 95

Operating Temperature Range
-30 °C ~ +70 °C, class A
-40 °C ~ +85 °C, class B

MCU
32-bit ARM® Cortex™-M4 architecture; running at 168 MHz

SPI Flash Memory
2 MB

Power-Off
RTC with an approx. 100-day data retention period; courtesy of a 15 mW lithium manganese battery (not functional below -20 °C)

Power Consumption (W)
All figures worst-case (70 °C, 32 V, all subsystems fired on, etc.)
- Idle: 0.96 (M111); 1.10 (M113); 1.25 (M114)
- Standby: 2.31 (M111); 2.63 (M113); 2.83 (M114)
- Communication (Tx max.): 5.34 (M111); 6.18 (M113); 6.18 (M114)

mPack SOFTWARE SUITE

Connectivity
- Dial-up
- TCP / UDP permanent client / server or on-demand client with two TCP / UDP sockets for failover
- Network connectivity watchdog

Miscellaneous Features
- Conversion between Modbus RTU and Modbus TCP
- Configurable text and recipient(s) upon Last Gasp

DotA
via user's HTTP server or D2SHRE™

Configuration
via Workbench through RS-232 or USB; also via SMS, Telnet or D2SHRE™

Model Name | Territorial Coverage | Cellular Type | Bands 2 | Fallback Mode 1 | Band(s) 2 | Location Services | Planned / Obtained Certifications 2 | Planned / Made FCS 4 | Order Code
--- | --- | --- | --- | --- | --- | --- | --- | --- | ---
M111 | World excl. Japan, Korea 1 | 2G 1 | 5/8/3/2 | X | N/A | | | |  
M115 | World 1 | 3G | 5/8/3/1 | 2G 2 | 5/8/3/1 | | | |  
M112 | China | NB-IoT | 5/8/3 | | | | | |  
M113 | World 4 | Dual mode LTE-M1 / NB-IoT 5 | | | | | | |  
EMEA; South-East Asia; South Asia | 12/13/20/5/8/3/4/2/1 (roaming only) | 2G 3 | 5/8/3/2 | | | | | |  
M114 | EMEA | LTE cat. 1 | 12/13/4/2 | 3G | 5/8/3/2 | | | |  
AT&T Wireless, T-Mobile USA, Sprint | 23/8/3 | | | | | | | |  
Asia Pacific | 12/13/4/2 | 3G | 5/8/3/2 | | | | | |  
NTT docomo 6 | 19/1 | | | | | | | |  

1 Uplink / Downlink maximum data rates
2 Ranked by increasing frequencies
3 In case of M113, three special software builds are available for North America, Japan and South Korea
4 First customer shipment [date of] 2018
5 A special software build is available for NTT docomo

Please consult us regarding the models or features shown in grey, which are subject to MOQ and other considerations.

OPERATION AND CONTROLS

Power
8 V dc ~ 32 V dc with SLOW START; via the upper row of a dual row, 4-pin, Micro-Fit™ 3.0 header

*I/Os*
Two 2-way versatile I/Os, i.e. user-configurable, each one independently from the other, as either (i) analogue input or (ii) digital output; via the lower row of the same header

Analogue Input: 0 V dc ~ 48 V dc range; 12-bit resolution
Digital Output: open collector; 200 mA max.; 50 V dc max.

Reset Button
RS-232
USB 2.0
via a Type-C header

Cellular (details in the table below)

<table>
<thead>
<tr>
<th>Country</th>
<th>Region</th>
<th>Carrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>Sep. '18</td>
<td>DOCOMO</td>
</tr>
<tr>
<td>China</td>
<td>Feb. '19</td>
<td>China</td>
</tr>
<tr>
<td>Europe</td>
<td>Sep. '18</td>
<td>Europe</td>
</tr>
<tr>
<td>Asia</td>
<td>Oct. '19</td>
<td>Asia</td>
</tr>
</tbody>
</table>

Features
- Short / Long press for Reset / Reset to factory settings
- DB type 2 internal USB host
- LED: Short / Long press for Reset / Reset to factory settings
- Status indicators on top (The latter)

*SIM*
mini-SIM held in a tray

Two as Power / Cellular signal

FACTORY OPTIONS*
(subject to MOQ and other considerations)

Last Gasp
Allows for sending at least five 30-character SMS at one-second intervals; courtesy of two industrial-grade super caps

Flash Memory
Third possible configuration as (iii) analogue input suited to current loop sensors (aka 4 mA ~ 20 mA sensors)

In lieu or, for dual SIM operation, in addition of the mini-SIM tray

ADD-ON

<table>
<thead>
<tr>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC465, a 9-pin male sub-D plug that 'snappily' converts any M110 unit into an isolated, half- or full-duplex (user-selectable via a slide switch) RS-485 unit via a 5-pin, 3° mm pitch, COMBOCON header</td>
<td></td>
</tr>
</tbody>
</table>

ESSENTIAL ACCESSORIES

Power Cords
KDC42 or KDC44 (the latter with two more strapped wires for I/Os)

USB Cords
KUC1, 0.6-metre-long, Type-C plug ↔ Type-A plug

Remote, Adhesive, Antennas
- A special software build is available for NTT docomo
- In case of M113, three special software builds are available for North America, Japan and South Korea

Voice: RCM, FCC 1 and PTCRB
- JRF, JPA, NTT docomo, SoftBank; KC, SK telecom

FCC 1, Spectrum Wireless
- Sep. '18

PTCRB
- Oct. '18

Testing: ENSued, PTCRB, Verizon Wireless, AT&T Wireless

EC 1
- Jul '18

Certified: FCC 2, PTCRB
- Jun '18

ESU
- Aug '20

MIL-STD-810H 1, over Military
- Oct '19

SMD 4
- Feb '19

MIL-STD-810H, by Switzerland's SGS
- Feb '19

3 Based on compliance with RED; EN 60950-1; etc.

* SIM 12V and 5V cap is optional. Please consult us for more information.

<table>
<thead>
<tr>
<th>Standards</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIL-STD-810H</td>
<td>by Switzerland's SGS</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>First customer shipment [date of]</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>A special software build is available for NTT docomo</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>In case of M113, three special software builds are available for North America, Japan and South Korea</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>Based on compliance with RED; EN 60950-1; etc.</td>
</tr>
</tbody>
</table>

* SIM | Also Class 1 Division 2 for use in explosive atmospheres as a factory option subject to MOQ and other considerations

<table>
<thead>
<tr>
<th>Certifications</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCC 1</td>
<td>Sigma 1999</td>
</tr>
<tr>
<td>ENS</td>
<td>PTCRB, 700 MHz, NTT docomo</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>by Switzerland's SGS</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>First customer shipment [date of]</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>A special software build is available for NTT docomo</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>In case of M113, three special software builds are available for North America, Japan and South Korea</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>Based on compliance with RED; EN 60950-1; etc.</td>
</tr>
</tbody>
</table>

* SIM | Also Class 1 Division 2 for use in explosive atmospheres as a factory option subject to MOQ and other considerations

<table>
<thead>
<tr>
<th>Standards</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIL-STD-810H</td>
<td>by Switzerland's SGS</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>First customer shipment [date of]</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>A special software build is available for NTT docomo</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>In case of M113, three special software builds are available for North America, Japan and South Korea</td>
</tr>
<tr>
<td>MIL-STD-810H</td>
<td>Based on compliance with RED; EN 60950-1; etc.</td>
</tr>
</tbody>
</table>

* SIM | Also Class 1 Division 2 for use in explosive atmospheres as a factory option subject to MOQ and other considerations