

M110 SERIES



Intelligent industrial modem

Maestro 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 SUITE
with Workbench configuration tool

Smart Metering



Oil & Gas Monitoring



Industrial Automation



POS & Kiosk



Vending Machine



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 Maestro and FALCOM 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 ⁻⁷ without connectors
WEIGHT (G)	Approx. 95
OPERATING TEMPERATURE RANGE	✓ -30 °C ~ +70 °C, class A ✓ -40 °C ~ +85 °C, class B
MCU	STMicroelectronics' STM32F446 ✓ 32-bit ARM® Cortex™-M4 architecture; running at 168 MHz ✓ Built-in 256 KB *Flash memory* and 128 KB RAM
SPI FLASH MEMORY	2 MB
POWER-OFF TIMEKEEPING	RTC with an approx. 100-day data retention period; courtesy of a 15 mWh lithium manganese battery (not functional below -20 °C) All figures worst-case (70 °C, 32 V, all subsystems fired on, etc.)
POWER CONSUMPTION (W)	✓ Idle: 0 ^{.96} (M111); 1 ⁻¹⁰ (M113); 1 ⁻¹⁰ (M114) ✓ Standby: 2 ^{.31} (M111); 2 ^{.63} (M113); 2 ^{.63} (M114) ✓ Communication (Tx max.): 5 ^{.54} (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	✓ Support for concatenated SMS ✓ Conversion between Modbus RTU and Modbus TCP ✓ Configurable text and recipient(s) upon Last Gasp
DOTA CONFIGURATION	via user's HTTP server or D2SPHERE™ via Workbench through RS-232 or USB; also via SMS, Telnet or D2SPHERE™

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	Short / Long press for Reset / Reset to factory settings
RS-232	Full implementation; via a 9-pin sub-D header
USB 2.0	via a Type-C header
CELLULAR (details in the table below)	One- or two-antenna models as: ✓ 2G M111; NB-IoT M112; dual mode LTE-M1 / NB-IoT M113[G]; 3G M115; via an SMA antenna connector; or ✓ LTE cat. 1 M114; via two SMA antenna connectors (main and diversity)
SIM	mini-SIM held in a tray
OPERATING STATUS LEDs	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	Doubled to 512 KB
3-WAY I/Os	Third possible configuration as (iii) analogue input suited to current loop sensors (aka 4 mA ~ 20 mA sensors)
MFF SIM	In lieu of, for dual SIM operation, in addition of the mini-SIM tray

ADD-ON

SNAP CAP™	A 9-pin male sub-D plug that 'snappily' converts any E210 unit into an isolated, half- or full-duplex (user-selectable via a slide switch) RS-485 unit via a 5-pin, 3 ⁻⁵ mm pitch, COMBICON header
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ESSENTIAL ACCESSORIES

POWER CORDS	✓ ACC-CA10 ✓ ACC-CA10-F with two additional stripped wires for I/Os
REMOTE, ADHESIVE, ANTENNAS	All IP67-rated, except for ACC-A31 (IP33) and ACC-A31H (N/A) ✓ ACC-A31 or ACC-A31H LTE: M111, M112, M113, M115 ✓ ACC-A32 or ACC-A32H 'two-in-one' LTE + LTE: M114
DIN RAIL CLIP	ACC-DIN: 3½ U



MODEL NAME	TERRITORIES OR OPERATOR(S)	CELLULAR TYPE ¹	BANDS ²	FALLBACK MODE ¹	BAND(S) ²	LOCATION SERVICES	PLANNED / OBTAINED CERTIFICATIONS ³	PLANNED / MADE FCS ⁴	ORDER CODE
M111	World excl. Japan, Korea	2G ^{A1}	5/8/3/2				CE ⁷	Aug. '18	M111
M112	China	NB-IoT	5/8/3 28/20/5/8/3				CCC, SRRC, CTA TBD	TBD	M112#358 M112
M113	World ⁵	Dual mode LTE-M1 / NB-IoT	12 ^a /28/13/20/26 ^b /8/3 ^c /4/25 ^d 1 (roaming only)	*	N/A		ISED; FCC ⁸ , PTCRB, Verizon Wireless, AT&T Wireless; JRF, JPA, NTT docomo, Soft-Bank; KC, SK telecom	Sep. '18	M113-N
	EMEA; South-East Asia; South Asia		12 ^a /13/20/5/8/3/4/2 26/28 (roaming only)	2G ^{A3}	5/8/3/2	*	CE ⁷	Jan. '19	M113
M114	EMEA		20/3/7		8/3		FCC ⁸ , Verizon Wireless	TBD	M114#37K#38 M114#4D
	Verizon Wireless		13/4	*	N/A		ISED; FCC ⁸ , PTCRB, AT&T Wireless		M114#245C#25
	AT&T Wireless, T-Mobile USA, Sprint	LTE cat. 1	12 ^a /5/4/2	3G	5/2		RCM; NCC	Oct. '18	M114#38S#1
	Asia Pacific		28/8/3		1		JRF, JPA	TBD	M114#13
	NTT docomo		19/1	*	N/A		TBD		M115
M115	World ⁶	3G	5/8/3/1	2G ^{A2}	5/8/3/2		TBD		M115

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

¹ Uplink / Downlink maximum data rates

- 2G: ^{A1} 42.8 / 85.6; or 236^B / ^{A2} 236.8; or ^{A3} 296 kbps
- NB-IoT: 62.5 / 27.2 kbps
- LTE-M1: 375 / 375 kbps
- LTE cat. 1: 5⁻² / 10⁻³ Mbps
- 3G: 5.76 / 7.2 Mbps

² Ranked by increasing frequencies

^a incl. North America's ("NorAm's") B17
^b incl. KDDI's B18 as well as NorAm's B5, the latter incl. NTT docomo's B19, itself incl. Japan's B6 (3G)
^c incl. Japan's B9
^d incl. NorAm's B2

³ Besides **MIL-STD-810H**

⁴ First customer shipment [date of]

⁵ Three special software builds are available for North America, Japan and South Korea

⁶ A special software build is available for NTT docomo

⁷ Based on compliance with RED; EN 60950-1; etc.

⁸ Also Class 1 Division 2 for use in explosive atmospheres as a factory option subject to MOQ and other considerations

14 June 2019