E220 SERIES

maestro)))
empowering wireless

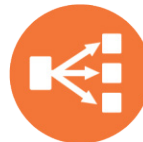## Highly versatile, reliable and rugged routers

Available in 3G and LTE and with WAN, LAN, Wi-Fi and serial connectivity, the E220 series of M2M routers is designed for mission-critical enterprise applications.
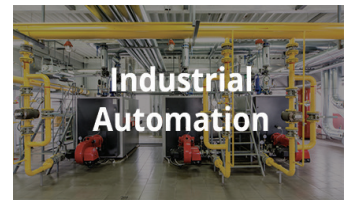
Advanced Failover

Maximise uptime by seamlessly switching between multiple Internet interfaces

Advanced Load Balancing

Spread or bind your data traffic across the multiple Internet interfaces, based on data type, source or destination and the relative WAN connectivity costs

Multiple Tunnelling Schemes

Secure your data using a variety of VPN tunnelling schemes, including PPTP, PPTP, OpenVPN, GRE and IPsec

RS-485 Operation

Integrate sensors and third-party devices over the RS-485 serial port to provide seamless connectivity to IP networks

Industrial Automation

Sales & Payment

Infrastructure & Transportation

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 maintain connectivity, manage quality of service and prevent downtime.

D2SPHERE™

E220 Series specifications

HARDWARE

Material	Brushed aluminium alloy, DIN Rail mountable
Dimensions	61.25 x 85.75 x 24.5 mm without connectors
Weight	Approx. 152 g
Operating status LED x 6	Alert / Power / Cellular signal, network and activity / Wi-Fi
Operating temperature range	All Lite models: -20°C ~ +55°C All other models: -30°C ~ +70°C
SDRAM	All Lite models: 512 Mbit All other models: 1 Gbit

SOFTWARE

Administration / Network Protocols	Web-based user interface, set-up wizard, console log viewer, save / load configuration, NTP, SMS / OTA remote configuration, TR-069 capable
Redundancy	Ethernet, cellular, Wi-Fi - configurable as failover or load-balancing
Resilience	Network connectivity watchdog (configurable), internal application watchdog
Wi-Fi	Client or Access Point (approx. 40-user), multiple SSID, WEP, WPA, WPA-PSK / WPA2-PSK security modes
M2M services	Compatible with D2SPHERE™ device management services
Security	Zone-based firewall, VLAN, DMZ, HTTPS local and remote connection, SIM PIN
Performance / Fault Management	Real time processor load and interface (WAN / LAN / Wi-Fi), traffic analysis, ICMP, trace-route, NS lookup
Routing	DHCP, static routing, port-forwarding, traffic routing, static/dynamic DNS, DNS proxy, NAT, STP
VPN	PPTP client, L2TP, OpenVPN client / server / pass-through, GRE, IPSec
Industrial Protocols	Modbus RTU to TCP support, Modbus master

INTERFACES

LAN	RJ45 connector with Tx / Rx LEDs
RS-485	Full- and half-duplex, 6 kV contact, 8 kV air discharge protection / 5-pin, 2.5 mm pitch COMBICON connector
Wi-Fi	IEEE 802.11b/g/n 2T2R 2.4 GHz (max. 300 Mbps throughput) / RP-SMA antenna connector (50 Ω) x 2
WAN	RJ45 connector with Tx / Rx LEDs; switchable to LAN 2
Cellular	SMA antenna connector x 1 (E225 models) or x 2 (E224 and E228 models)
SIM	Mini SIM 1.8 V / 3.0 V Optional dual SIM operation via a factory-fitted MFF SIM
GPS*	SMA antenna connector either dedicated (E225 models) or shared with cellular diversity (E224 and E228 models)
Digital I/O x 2	Input - detection, 5 V ~ 48 V DC Output - open collector, max. output 200 mA / 3-pin, 2.5 mm pitch COMBICON connector with common ground

POWER

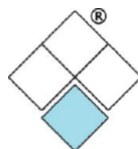|	
Main Source	Roadworthy** 9 V ~ 60 V DC on a 2-pin Micro-Fit™ 3.0 female connector
Alternate source*	Class 3 PD-PoE with seamless fall-back onto the main source
Last Gasp*	Approx. 5-minute via two 96 mWh Li-ion batteries (not functional below -10°C)

*Not available on Lite models
**Compliant with ISO 7637-2:2011 and 2004 as well as ISO 21848:2005

MODEL NAME	TERRITORIES OR OPERATOR(S)	CELLULAR TYPE	BANDS	FALLBACK MODE(S)	BANDS	GNSS	PLANNED CERTIFICATIONS	FCS (*)	ORDER CODE
E225 Lite	EMEA, [most of] Asia Pacific	3G ᵃ	1/8	2G	3/8	✕	RED, GCF		E225LITE#02
E224	EMEA, Indonesia	LTE cat. 1	3/8/20			E228's			E224#38K##38
	Asia Pacific		3/5/8/28	3G ᵇ	1/5/8		RCM, KCC, NCC		E224#358S#158
E225	EMEA, [most of] Asia Pacific	3G ᵃ	1/8	2G	3/8		RED, GCF		E225#02
E228 Mk II	EMEA	LTE cat. 4	1/3/7/8/20/28	3G ᶜ; 2G	1/8; 3/8	IZat™ gen. 8C gpsOne		May '18	E228MKII#02
	Asia Pacific		1/3/5/7/8/28	3G ᶜ	1/5/8		RCM, KCC, NCC	May '18	E228MKII#04
E228	AT&T Wireless, Rogers *User-configurable to* Verizon Wireless***	LTE cat. 4	2/4/5/17	3G ᶜ	2/5	Concurrent GPS, Galileo and either GLONASS (factory setting) or Beidou	FCC, PTCRB, AT&T Wireless, Verizon Wireless		E228#245DH#25
			2/4/13	✕	N/A				
	Asia Pacific		3/7/28	✕	N/A		RCM, NCC		E228#37S
	NTT docomo		1/19/21				JAE, JRF		E228#1JL
	KDDI		1/11/18						E228#1BI
	South Korea		1/3/5/7				KCC		E228#1357

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

Uplink / Downlink maximum data rates – 3G: 5.76 / ⁽ᵃ⁾ 7.2; or ⁽ᵇ⁾ 10.1; or ⁽ᶜ⁾ 42.2 Mbps;
LTE cat. 1: 5 / 10 Mbps; LTE cat. 4: 50 / 150 Mbps

* First customer shipment