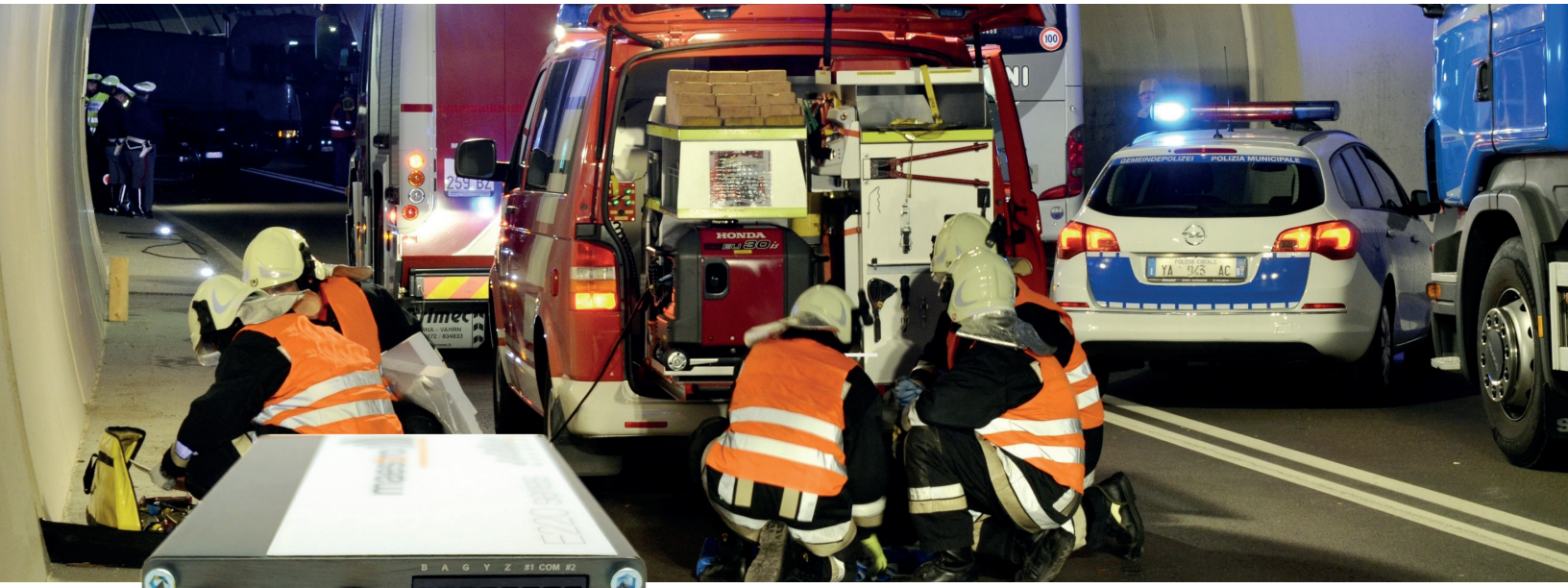
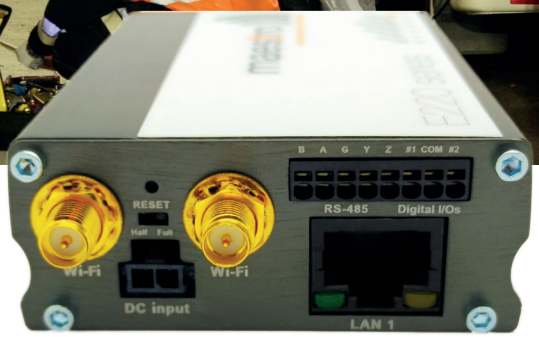
E220 Series

LANTRONIX®
CONNECT SMART. DO MORE.™





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 traic 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, L2TP, OpenVPN, GRE and IPsec

RS-485 Operation

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

D2SPHERE™

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.

HARDWARE

Material Brushed aluminium alloy

Dimensions (mm) $61^{.25}$ x $85^{.75}$ x $24^{.6}$ without connectors

Weight (g) Approx. 165

Temperature & humidity ranges
- ✓ Operating: either -20 °C ~ +60 °C (E225 Lite models) or -30 °C ~ +70 °C (all other models); up to 95% RH
- ✓ Storage: -40 °C ~ +85 °C; up to 95% RH

CPU
- ✓ MIPS32® 24KEc™ CPU running at 580 MHz
- ✓ Built-in 64 KB [resp. 32 KB] instruction [resp. data] cache

SPI Flash memory Either 32 MB (E225 Lite models) or 64 MB (all other models)

DDR2 SDRAM Either 64 MB (E225 Lite models) or 128 MB (all other models)

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)

Power consumption (W) All figures worst-case (60 °C, 60 V, all subsystems fired on, etc.)
- ✓ Idle: $0^{.96}$ (E225); $1^{.10}$ (E224); $1^{.10}$ (E228)
- ✓ Standby: $2^{.31}$ (E225); $2^{.63}$ (E224); $2^{.63}$ (E228)
- ✓ Communication (Tx max.): $5^{.54}$ (E225); $6^{.18}$ (E224); $6^{.18}$ (E228)

ePack SOFTWARE SUITE

Administration and Network protocols Web-based user interface, setup 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

Device management services via either our own D2Sphere™ platform or third-party platforms such as TrinitySMART, Thingworx, Thing+, Cumulocity, etc.

Security Zone-based firewall, VLAN, DMZ, HTTPS local and remote connection, SIM PIN

Performance and 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 / passthrough, GRE, IPsec

Industrial protocols MODBUS RTU/TCP to IEC-60870-5-104 converter,
Modbus Master mode,
Modbus RTU to Modbus TCP converter,
Modbus to MQTT / Cumulocity / FTP / Azure / Http, Serial to FTP converter,
IEC-60870-5-101 to IEC-60870-5-104 converter,
Modbus to DNP3 converter
IO to Modbus converter
I/O to IEC 104
I/O toggling through SMS

POWER

Main source $10^{.8}$ V dc ~ 60 V dc *'roadworthy,'* i.e. **ISO 7637-2:2011**- and even more stringent **ISO 7637-2:2004**-certified at both 12 V and 24 V, by TÜV, **ISO 21848:2005**-certified at 48 V, by QuieTek; via a 2-pin Micro-Fit™ 3.0 header

Alternate source ‡ Class 3 PD-PoE with seamless fall-back onto the main source (if the latter is plugged in, obviously)

Last Gasp Approx. 100-second long, courtesy of two 96 mAh Li-ion batteries (not functional below -10 °C)

Reset button Short (2 s ≤ < 10 s) / Long (≥ 10 s) press for Soft / Hard Reset

OPERATION AND CONTROLS

I/Os Two isolated digital I/Os with common ground; via the three leftmost pins of an 8-pin, $2^{.5}$ mm pitch, plug-less, COMBICON header
- ✓ Input: 0 V dc ~ $2^{.5}$ V dc → zero; 3 V ~ 50 V dc → one
- ✓ Output: open collector; 200 mA max.; 50 V dc max.

RS-485 6 kV- (contact) and 8 kV- (air) isolated, either half-duplex (factory setting) or full-duplex (user-selectable via a slide switch), operation; via the five rightmost pins of the header mentioned above

10/100BASE-T Ethernet One LAN port and one WAN port, user-reconfigurable as second LAN port; via RJ-45 headers fitted with two LEDs

Wi-Fi 2T2R Wi-Fi 4; via two RP-SMA antenna connectors

Cellular
- ✓ ***mini-SIM holder***
- ✓ via either one (E225 Lite and E225 models) or two (all other models) SMA antenna connectors – *cf. table below for details*

Location services † via an SMA antenna connector, either dedicated (E225 models) or shared with Diversity (all other models) – *cf. table below for details*

Operating status LEDs Six as green for (i) Power; blue for (ii) Wi-Fi; amber for (iii) Activity; (iv) Network; (v) Signal; red for (vi) Alert

FACTORY OPTION (subject to MOQ and other considerations)

MFF SIM Either substituted for, or in addition to, the standard mini-SIM holder Dual SIM / Single standby ("DSSS") operation in the latter case

ESSENTIAL ACCESSORIES

Power cord KDC22

Cellular and cellular / GNSS antennas
- ✓ Remote, adhesive, A31M0 or A31H0: E225 Lite models
- ✓ Remote, adhesive, IP67-rated, *'2-in-1'* LTE + GNSS, A14M0 or A14H0: E225 models
- ✓ Pair of L-shaped, hinged, *'dual purpose,'* A22H0: all other models

Wi-Fi antennas Pair of L-shaped, hinged, A24C0 (while stocks last) or A21H0

DIN Rail clip BR351, 3½ U

† *Not available on E225 Lite models*

‡ *Not available on E225 Lite and E228G Mk II models*

Model name	Territories or Operator(s)	Cellular type [1]	Bands [2]	Fallback mode(s) [1]	Bands [2]	Location services	Planned / Obtained certifications [3]	Planned / Made FCS [4]	Order code
E225 Lite	EMEA; South-East Asia; South Asia	3G ζ1	8/1	2G λ1	8/3	×	**CE** [5]	Sep. '16	E225FLZ2S
	World		5/8/2/1		5/8/3/2		*TBD*	Oct. '16	E225FLZFS
E228G Mk II	EMEA; Taiwan	LTE cat. 4	28/20/8/3/1/7	3G ζ3; 2G λ3	8/1; 8/3	IZat™ gen. 8C gpsOne	CE [5]; NCC	Nov. '18	E228G002S
	Brazil; ANZ; Thailand; Malaysia; Singapore		28/5/8/3/1/7		5/8/1; 8/3		Anatel; RCM; NBTC; SIRIM; IMDA		E228G004S
	China; Indonesia; India		5/8/3/1; TDD 40/41[a]		8/1; 8/3		Postel; ETA, TEC		E228G00CS
E225	EMEA; South-East Asia; South Asia	3G ζ1	8/1	2G λ1	8/3	Concurrent GPS, Galileo and either GLONASS (factory setting) or Beidou (user-configurable)	**CE** [5]	Sep. '17	E225HPL2S
	World		5/8/2/1		5/8/3/2		*TBD*	Oct. '16	E225HPLFS
E224	EMEA	LTE cat. 1	20/8/3	2G λ3	8/3		**CE** [5]	Apr. '17	E224HPL2S
	Asia Pacific		28/5/8/3	3G ζ3	5/8/1		**RCM**	Sep. '17	E224HPL3S
E228	Rogers; AT&T Wireless, T-Mobile USA, Sprint (factory setting)	LTE cat. 4	17/5/4/2	3G ζ3	5/2		**ISED**; **FCC** [8], **PTCRB**, **AT&T Wireless**, **Verizon Wireless**	Nov. '16	E228HPLAS
	Verizon Wireless (user-configurable)		13/4/2	×	N/A				
	ANZ		28/3/7				*TBD*	Jul. '17	E228HPL3S
	NTT docomo		19/21/1				**JRF**, **JPA**, **NTT docomo**	May '17	E228HPL5S
	KDDI		18/11/1				JRF, JPA	*TBD*	E228HPL6S
	LG U+		5/3/1/7				KC, LG U+	Nov. '16	E228HPL9S

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

[1] *Uplink / Downlink maximum data rates*
- *2G: λ1 $85^{.6}$ / $236^{.8}$; or $236^{.8}$ / λ2 $236^{.8}$; or λ3 296 kbps*
- *3G: $5^{.76}$ / ζ1 $7^{.2}$; or ζ2 $10^{.1}$; or ζ3 $42^{.2}$ Mbps*
- *LTE cat. 1: 5 / 10 Mbps (FDD); $3^{.1}$ / $8^{.96}$ Mbps (TDD)*
- *LTE cat. 4: 50 / 150 Mbps (FDD); 35 / 130 Mbps (TDD)*

[2] *Ranked by increasing frequencies*

[a] *More precisely, B41's 2535 MHz ~ 2655 MHz subset, suited to China's three operators and incl. TDD B38*

[3] *Besides MIL-STD-810H*

[4] *First customer shipment [date of]*

[5] *Based on compliance with RED; EN 60950-1; etc.*

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E225FLZ2B25 E225G00FS E228G00CB28 E225F052S E225HPLFB25 E225F052B05 E225F052B06