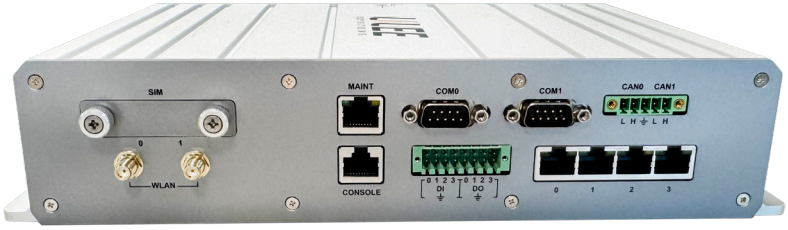
TransAir® STS-2020

Mutli-Funtion Mobile Gateway

- Dynamic load balancing and link aggregation for fast, reliable WAN connectivity
- Software configurable dual Wi-Fi AP for high-bandwidth applications
- Over-the-air (OTA)-enabled application containers running multiple independent applications
- Centralized remote monitoring and management



The LILEE® Systems TransAir® STS-2020 is a multi-function mobile gateway that delivers wireless connectivity and edge computing capabilities. It is designed to enable railroads to run wayside applications with increased safety and efficiency. It also enables fleet safety and passenger experience applications for public transit and private bus operators.

STS-2020 comes with two 5G/LTE Cat. 20 WWAN interfaces for fast and reliable WAN connectivity through aggregation and dynamic load balancing. The built-in Wi-Fi Access Point provides dual-band 802.11 ax/ac/a/n (5GHz) and 802.11 b/g/n (2.4GHz) connectivity and Power over Ethernet (PoE). It also supports FirstNet band 14 and band 48 CBRS Private LTE for secure, highly reliability, low latency communication.

STS-2020 supports OTA (over-the-air) remote management of devices and applications. Remote deployment, zero-touch onboarding, group configurations and troubleshooting help organizations increase operational efficiency, reduce operating cost and optimize device uptime.

SKU	Description
STS-2020	Mobile Gateway with 2 5G/LTE, 2 Wi-Fi (802.11 ax/ac/a/b/g/n), PoE+ and Application Containers

STS-2020 Specifications

Processor / Memory / Storage

Intel Atom Quad-Core Processor
8 GB onboard memory
2 * mSATA slots (64GB SSD preinstalled at SATA0)

Cellular Interfaces

5G: sub-6 FDD and TDD, SA and NSA operations, up to 2.5 Gbps DL/0.90 Gbps UL for 5G SA, up to 3.4 Gbps DL/0.46 Gbps UL for 5G NSA
4G: 5 CA up to 19 layers DL/2 CA UL, 256-QAM DL/UL, up to 1.6 Gbps DL/211 Mbps UL
2 * 4FF/Nano SIM slots
8 * SMA connector (4 x 4 MIMO for each LTE)
4 x 4 MIMO support on RF bands:
- 5G: n1, n2, n3, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79
- 4G: 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 18, 19, 20, 25, 26, 28, 29DL, 30, 32, 34, 38, 39, 40, 41, 42, 43, 46 (LAA), 48, (CRS), 66, 71

Wi-Fi Interfaces

Wi-Fi 6E, 802.11ax/ac/a/b/g/n, 2T2R up to 160MHz mode
Tri-band 2.4GHz, 5GHz and 6GHz
TBDC (Tri-Band, Dual Concurrent) mode support
2 x WLAN antenna connectors (2 x 2 MIMO)
Dual radio mode (AP or client)
Automatic or manual channels selection

Onboard Sensors

GNSS (GPS, GLONASS) receiver with multi-band, RTK and dead reckoning support
3-axis gyro
3-axis accelerometer
2 * CAN 2.0b bus

Physical Interfaces

1 * Power connector (terminal block)
1 * HDMI
1 * USB 3.0
1 * USB 2.0
8 * LTE antenna (SMA)
1 * GPS antenna (SMA)
2 * SIM slots (4FF/Nano SIM)
2 * Wi-Fi antenna (RP-SMA)
1 * Maintenance port (RJ45)
1 * Serial console (RJ45)
2 * RS-232/422/485 (DB9)
1 * Digital 1/0 connector (4 * digital input, 4 * digital output, 8 * ground)
1 * Wheel tick connector (SMA)
1 * PPS connector (SMA)
1 * CAN bus connector (2 * CAN-H/-L pairs)
4 * 10/100/1000 Ethernet RJ45 ports with 802.3at Type 2 support

OTA (Over-the-Air) Remote Management

Centralized device, application, network and client monitoring and management
Application hosting and edge computing

Local Management

Serial console port
Ethernet maintenance port

Protocol Support

IP Routing, DHCP, SNMPv2, SMS (Short Message Service), NTP, NAT
QoS Priority queuing, classification, and marking
8 VLAN/TOS based queues for application prioritization
NAT (dNAT & sNAT)
IPSec Protocol
PPPoE
Link aggregation across LTE (different providers), Wi-Fi, and Ethernet
Vehicle Wheel Tick input via software interface

Security

IPsec, DTLS, SSL
Encryption: TKIP, AES/CCMP
Authentication
- 802.1X/EAP for WPA/WPA2 Enterprise
- PSK for WPA/WPA2 Personal
- RADIUS Server
Port forwarding and filtering
Captive Web Portal
Content Filtering

Physical Characteristics

Cooling design	Fanless
Housing	Metal
Dimensions (H x W x L)	2.4 x 7.1 x 11.6 in (60 x 180 x 294 mm)
Weight	7.5 lbs. (3.4 kg), estimated
Installation	Shelf and wall

Environmental Limits

Functional Operating Temperature	-40 to 70 °C (-40 to 158 °F)
Storage Temperature	-55 to 85 °C (-67 to 185 °F)
Ambient Relative Humidity	5% to 95% (non-condensing)

Power

Input voltage: 10 – 30 VDC
Shutdown threshold voltage: 9 VDC
Consumption:
- 200mW during soft off
- 12W at idle, no external connections
- 150W maximum with PoE (90W maximum to devices)

Certifications

FCC, PTCRB, CE (EMC), CB, UL/C-UL, EN45545, EN50155*
* With external isolated DC-DC power source

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