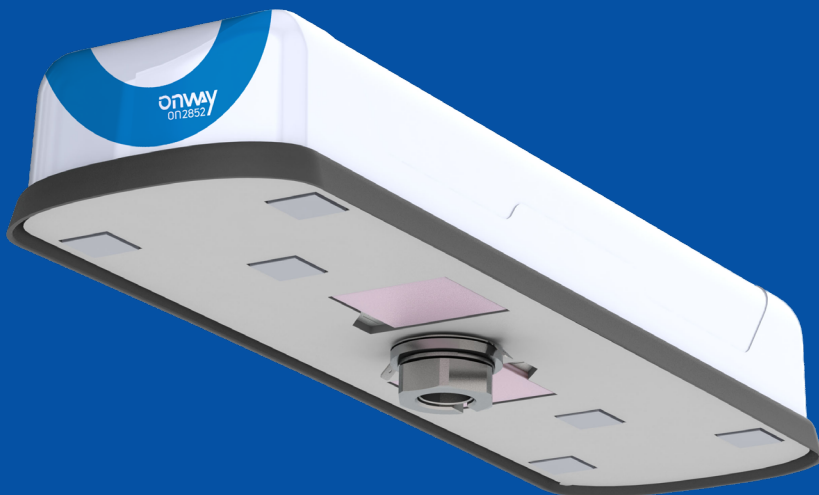


Datasheet ON2852

- The ON2852 is a rugged rooftop router designed for reliable, high-performance connectivity in public transport and other mobile applications. It combines two independent 4G/5G modems, WiFi 7, dual-band GPS/GNSS, integrated antenna systems and advanced positioning sensors in a single compact device.
- With two independent 4x4 MIMO cellular antenna arrays, the ON2852 supports global 4G and 5G bands and enables resilient multi-carrier connectivity. Its integrated router platform provides high-performance data processing, Ethernet connectivity and routing capacities of more than 2.5 Gbps.
- The integrated dual-band GPS/GNSS system supports high-precision positioning, dead reckoning and RTK correction. Two 3-axis magnetic sensors provide reliable heading information, while internal motion and temperature sensors support accurate positioning and system monitoring.
- The ON2852 is designed for rooftop installation on conductive or non-conductive surfaces. Its flame-retardant, halogen-free housing provides IK10 impact protection and IP69K ingress protection when correctly installed.



Applications

- Mobility
- First responders
- Kiosks and devices

Features

- 8x 4G/5G elements
- Up to 8x8 MiMo Dual Band WiFi 6e / 7
- Up to 2 GPS/GNSS L1 or L1/L5 bands
- Meets IK10 and IP69K

Benefits

- Low height
- IP69K ingress protection
- IK10 impact protection
- UN ECE R118 compliant cable
- 2 modems
- 2 compasses

Technical specifications ON2852

Dimensions / Weight

Dimensions (W x H x D): 437 x 133 x max. 56 mm

Weight: ≤ 2.0 kg

Mounting: M24 Central Mounting Screw

Ingress Protection: IP69K if mounted on roof

Operating temperature: -20 to +70 °C

Temperature Management:

At Overtemperature:

- CPU Clock Reduction
- Controlled Shutdown

MTBF: > 100'000 h **Colour:** White

Electrical Connection:

- M12 Code X female
- Push-Pull Connector (IEC 61076-2-010)
- on Cable 0.6 m

Earth Connection: 6.3 mm blade terminals on central screw washer

Note: A heat conducting mounting base is required. On plastic roofs, an aluminium sheet metal should be installed below the base plate. Consult the installation manual for details.

Architecture

Router CPU: NXP Layerscape® LS1043A quad Arm® Cortex®-A53 64-bit Core Networking System-on-Chip

Supporting Hardware for CPU Offloading:

- Data Path Acceleration Architecture (DPAA)
- Parse, Classify and Distribution Engines
- Hardware Security Engine for Cryptography

Memories: 2 GB DDR4 RAM, 8 GB eMMC Flash Storage

Security Hardware: TPM2.0

Platform Switching and Routing Capacity: > 2.5 Gbps

Network Interfaces

LAN: 1 Ethernet Port 2.5 Gb, 2.5 GBASE-T / 1000 BASE-T 100BASE-TX IEEE 802.3 on 0.6m Cable and M12 Code X „inner“ Push Pull Connector (IEC 61076-2-010)

WLAN Type: WiFi-7 2.4 / 5 / 6 GHz IEEE, 802.11a/b/g/n/ac/ax/be, Qualcomm WCN7851-5 chipset, with integrated 2 x 2 MIMO Antenna

WLAN Speed Capability: Up to 4.3 Gbps

WLAN Types: 2 completely independent Mobile Network 5G SA / 5G NSA / 4G / 3G Ports with 2 independent integrated 4 x 4 MIMO Antenna Arrays (2 x 4 x 4)

5G Bands: n1 (FDD 2100 MHz), n3 (FDD 1800 MHz), n5 (FDD 850 MHz), n7 (FDD 2600 MHz), n8 (FDD 900 MHz), n20 (FDD 800 MHz), n28 (FDD 700 MHz), n38 (TDD 2600 MHz), n40 (TDD 2300 MHz), n41 (TDD 2500 MHz), n71 (FDD 600 MHz), n77 (TDD 3700 MHz), n78 (TDD 3500 MHz)

4G Bands: B1 (FDD 2100 MHz), B3 (FDD 1800 MHz), B5 (FDD 850 MHz), B7 (FDD 2600 MHz), B8 (FDD 900 MHz), B20 (FDD 800 MHz), B28 (FDD 700 MHz), B32 (SDL 1500 MHz), B38 (TDD 2600 MHz), B40 (TDD 2300 MHz), B41 (TDD

2500 MHz), B42 (TDD 3500 MHz), B43 (TDD 3600 MHz), B71 (FDD 600 MHz)

3GPP version: Release 16 compliant

WAN 5G Speed Capability:

Download 3400 Mbps, Upload 900 Mbps

SIM interfaces: 2 x eSim (Public Profiles)

Diagnostic and Console Interface:

Virtual COM port on USB-C interface

Electrical Specifications

Supply Interface: Power over Ethernet (PoE+) IEEE 802.3at

Supply Voltage Range: 42.5–57.0 V according to IEEE 802.3at

PoE Power Class: 4 (12.95 - 25.50 W)

Power Consumption: Min. 15 W, Max. 20 W

Physical Supply Connector: M12 Code X female Push-Pull Connector (IEC 61076-2-010)

on Cable 0.6 m (same as Ethernet port)

Sensors

Position sensor: u-blox ZED-F9R-based Dual Band Dead Reckoning GNSS with RTK Capability

GNSS accuracy: 1.5 m (without correction), 1.0 m (SBAS enabled), 0.01 m (RTK data avail.)

GNSS update rate maximum:

30 positions per second

Dead-Reckoning inputs:

- Software-provided Speed Ticks (recommended)
- Internal Accelerometer

Output protocol: NMEA, u-blox binary

RTK correction data protocol: RTCM 3.3

GNSS internal sensors:

- 3-Axis linear accelerometer
- 3-Axis rotation speed sensor

Magnetic compass:

Dual 3-Axis magnetic sensor compass ±0.8mT

Compass output: Heading from North, Quality of heading information (degradation due to local magnetic interference)

Compass accuracy:

± 2° (with no local magnetic interference)

Temperature sensor: ± 1°C internal temp. monitoring

Standards Compliance

Road cars compliance: UN ECE-R10 (EMC), UN ECE-R118 (fire safety), E mark

Light rail vehicles compliance: EN 50155 (environmental, mechanical, and electrical performance), EN 61373-1 (Shock and vibrations), EN 50121-3-2 (EMC), EN 45545-2 (fire safety)

General compliance: CE mark