

# SmartFlex SR310

## Industrial Cellular Routers & Gateways

### Flexible 4G Routers & IoT Gateways



#### Features

- Global LTE Cat.4 high speed connectivity with 3G fallback
- 2x SIM for redundancy
- Flexible port options: 2 - 5x Ethernet 10/100 Mbps, Isolated RS-232/422/485 and isolated 2x DI, 1x DO
- GPS and GLONASS support
- Optional industrial-grade Wi-Fi
- Optional 2x PoE+ PSE or 1x PoE PD
- Wide operational temperature range
- DIN mount
- Linux based OS & SW customization
- Advanced security features

#### Introduction

SmartFlex SR310 cellular router provides secure Internet connectivity for devices and LANs via cellular networks. It provides automatic wireless failover for wired networks, wireless connectivity for devices in remote locations such as industrial PCs, HMI's, traffic controllers, kiosks, meters, cameras, and much more.

SmartFlex serves well also for applications that require video transmitting because of download speed up to 150 Mbps and upload speed up to 50 Mbps.

Modular SmartFlex design can be ordered in many hardware options. Standard hardware configuration always includes 2 Ethernet 10/100 ports with 2 independent LANs/IP addresses – optionally with PoE+ PSE or PoE PD feature – 1 USB host port, 1 microSD card holder, 2 SIM card holders for automatic failover to an alternate service provider, 2 binary inputs (I/O), 1 binary output (I/O), and onboard GPS/Glonass receiver.

As an extension to hardware interface options above can be modified by an additional 3x 10/100 ETH board (so totally up to 5 Ethernet ports configured for 3 independent LANs/IP addresses) or combined Ethernet/RS-232/485 board or RS-232/485 board (isolation strength up to 2.5kV). An optional built-in Wi-Fi module also available with industrial-grade operating temperature ranges from -40 to +75 °C.

SmartFlex transfer intelligence at the network edge with a powerful Cortex A8 CPU running on 1GHz frequency, 256 MB flash memory, 512 MB RAM, and 128kB M-RAM.

A secure Web interface allows users to configure and manage SmartFlex from remote locations. The SmartFlex supports real-time data encryption and the creation of VPN tunnels using IPsec, OpenVPN, GRE, etc. It supports standard and advanced networking features like DHCP, NAT, NAT-T, DynDNS, NTP, VRRP, control by SMS, and numerous other functions.

With an open Linux platform and the wide possibility of programming customer SW applications in Python, C/C++ or browser-based flow editor Node-RED the SmartFlex offers a real open development platform for Industrial IoT applications. The Advantech existing Router App library (User modules) with apps already developed to enhance specific router functionalities includes industrial protocol conversions and support of IoT platforms such as MS Azure, Cumulocity, and others.

SmartFlex is easy to install individually and in mass deployments scenarios too by using a full-featured configuration and monitoring software tool WebAccess/DMP. Safe remote VPN access to customer devices and PCs connected to routers through Internet can be administrated by additional software WebAccess/VPN.

#### Ordering Information

Note: Check with your local distributor for availability, options, and HW configuration. Contact Advantech distributors.

SmartFlex Family

SR310 router, 2x ETH, 1x USB, 2x BI, 1x BO, MicroSD reader, 2x SIM reader

##### BB - SR310BCCDE

###### Accessories

- |   |  |
|---|--|
| 0 | No Accessories (DIN holder included)         |
| 1 | Accessories with EU power supply             |
| 5 | International Power Supply (EU, US, UK, AUS) |

###### Enclosure

- |   |                   |
|---|-------------------|
| 1 | Plastic enclosure |
| 2 | Metal enclosure   |

###### Interfaces

- |   |   |
|---|---|
| 0 | 2x ETH  |
| 1 | 2x ETH, 3x ETH Switch                           |
| 3 | 2x ETH, RS232 (5-pin TB), RS485/422 (4-pin TB)  |
| 4 | 2x ETH, RS232 (4-pin TB), RS485 (3-pin TB), ETH |

###### PoE

- |   |            |
|---|------------|
| 0 | No PoE     |
| 8 | 2x PoE PSE |
| 9 | PoE PD     |

###### WiFi

- |   |                    |
|---|--------------------|
| 0 | No Wi              |
| 1 | WiFi (2.4 & 5 GHz) |



WebAccess/DMP

WebAccess/VPN

### Specifications

| System                              |  |
|-------------------------------------|--|
| CPU                                 | ARM Cortex-A8, 1000 MHz  |
| Memory                              | RAM - 512 MB<br>NOR Flash - 256 MB<br>MRAM - 128 KB<br>(128 MB for Router APPs, 128 KB for customer data)  |
| Watchdog                            | HW Watchdog  |
| RTC                                 | Battery backup RTC   |
| Interfaces                          |  |
| Ethernet                            | 2× Ethernet, RJ45, 10/100 Mbps, Isolation 1.5 kV   |
| Port expansion option BB-SR310xx1xx | 3-port Ethernet switch, RJ45, 10/100 Mbps, Isolation 1.5 kV  |
| Port expansion option BB-SR310xx3xx | 1× RS232 (Tx, Rx, GND, RTS, CTS), 5-pin terminal block, Isolation 2.5 kV<br>1× RS485 (2× TxRx+, 2× TxRx-), 4-pin terminal block, Isolation 2.5 kV  |
| Port expansion option BB-SR310xx4xx | 1× Ethernet, RJ45, 10/100 Mbps, Isolation 2.5 kV<br>1× RS232 (AUX, GND, Tx, Rx), 4-pin terminal block (no isolation)<br>1× RS485 (TxRx+, TxRx-, GND), 3-pin terminal block, Isolation 2.5 kV |
| I / O                               | 2× Digital Input (60V AC/DC, 7 mA)<br>1× Digital Output (60V AC/DC 300 mA)<br>(6-Way Molex connector)  |
| USB                                 | 1× USB 2.0 Host Connector  |
| MicroSD Card                        | 1× Micro SD Card Slot (SDHC, SDXC)   |
| Reset Button                        | Factory reset  |
| LED Indicators                      | System-power, Data activity, 3-level signal strength, SIM1/SIM2 status, PoE status, Input 0 status, Input 1 status, Output state, User, ETH  |

| PoE PD: parameters for opposite PSE device - Optional |   |
|---|---|
| Input voltage range                                   | 42.5 – 57 V DC, IEEE 802.3af-2003                 |
| Power available                                       | 25.50 W   |
| Maximum current                                       | 600 mA  |
| PoE+ PSE parameters - optional                        |   |
| Power supply needed                                   | 42.5 – 57 V DC                                    |
| Power available                                       | 2× 25.50 W (ETH0, ETH1), IEEE 802.3at-2009 (PoE+) |

| Environmental            |  |
|--------------------------|--|
| Power Supply             | 10 – 60 V DC (2-Way Molex connector)           |
| Consumption              | Idle 2.5 W / Average 4 W / Peak 11 W           |
| Sleep Mode               | Yes, 10 mW                                     |
| Operating Temperature    | -40 to +75 °C                                  |
| Storage Temperature      | -40 to +85 °C                                  |
| Humidity                 | 5 to 95 %                                      |
| IP Cover                 | IP30   |
| Physical Characteristics |  |
| Dimensions               | 55 x 97 x 125 mm                               |
| Enclosure                | Robust Metal Case or Plastic Case              |
| Mounting                 | DIN Rail                                       |
| Weight                   | Metal version: 375 g<br>Plastic version: 170 g |

| GNSS                 |  |
|----------------------|--|
| Antenna              | 1× SMA connector, active (50 mA)                           |
| Systems              | GPS, GLONASS, BeiDou, Galileo                              |
| Protocol             | NMEA 0183 v3.0   |
| Ac Time-to-First-Fix | Hot start 1 s, Warm start: 29 s, Cold 32 s                 |
| WiFi - Optional      |  |
| Antenna              | 1× R-SMA connectors  |
| Standards            | IEEE802.11 a/b/g/n 2.4 GHz / 5 GHz                         |
| Security             | WEP, TKIP, AES, WPA, WPA2, 802.1X                          |
| Modes                | Access Point (max 10 clients), Station, Multirole STA & AP |

| Cellular Interface    |  |
|-----------------------|--|
| SIM Slots             | 2× SIM (Mini SIMs – 2FF)   |
| Antennas              | 2× SMA connector (1× Main, 1× Diversity)   |
| LTE Parameters        | Supported FDD frequencies: B1 (2100 MHz)/ B2 (1900 MHz)/ B3 (1800 MHz)/ B4 (1700 MHz)/ B5 (850 MHz)/ B7 (2600 MHz)/ B8 (900 MHz)/ B12 (700 MHz)/ B13 (700 MHz)/ B18 (800 MHz)/ B19 (800 MHz)/ B20 (800 MHz)/ B25 (850MHz)/ B26 (850 MHz)/ B28 (700 MHz)<br>Supported TDD frequencies: B38 (2600 MHz)/ B39 (1900 MHz)/ B40 (2300 MHz)/ B41 (2500 MHz)<br>Transfer rate: up to 150 Mbps (DL), 50 Mbps (UL) |
| HSPA+/UMTS Parameters | Supported frequencies: B1 (2100 MHz)/ B2 (1900 MHz)/ B4 (1700 MHz)/ B5 (850 MHz)/ B6 (800 MHz)/ B8 (900 MHz)/ B19 (800 MHz)<br>Transfer rate: 42 Mbps (DL), 5.76 Mbps (UL)   |
| EDGE/GPRS Parameters  | Supported frequencies: B2 (1900 MHz)/ B3 (1800 MHz)/ B5 (850 MHz)/ B8 (900 MHz)<br>Transfer rate: 296Kbps (DL), 236.8Kbps (UL)   |

| Standards & Regulations |  |
|-------------------------|--|
| Radio                   | EN 301511, EN 301908-1, EN 301908-2, EN 301 908-13, EN 303 413, EN 301 893, EN 300 328, FCC 22H, 24E, 27, 90, PTCRB (in development) |
| EMC                     | EN 301489-1, EN 301 489-17, EN301489-19, EN 301489-52, EN 61000-6-2, FCC part 15B (in development)                                   |
| Safety                  | EN/IEC/UL 62368-1  |
| National                | CE, FCC (in development), IC (in development)  |
| Carrier Approval        | AT&T, Verizon, T-mobile (all in development)   |
| Mechanical              | EN 60068-2-64, EN 60068-2-27 (all in development)  |
| Climatic                | EN 60068-2-1, EN 60068-2-2, EN 60068-2-14, EN 60068-2-30   |
| Environmental           | RoHS3, Reach, WEEE   |

### Software

|                                   |   |
|-----------------------------------|---|
| Operating System                  | ICR-OS (Linux based)  |
| SW Customization                  | Router App (User Modules)*  |
| Application Development           | Open Linux, *Python, BASH, C/C++, *Node-RED   |
| Industrial Protocols and IoT      | *Modbus RTU/TCP gateway, *IEC 60870-5-101 to 104 gateway, *DF1, *DNP3, *LWM2M   |
| Networking Features and Protocols | DHCP, NAT/PAT, SSH, VRRP, PPPoE, SNMP, SMTP, Dynamic DNS client, DNS proxy, VLAN, QoS, *DMVPN, NTP Client/Server, *Routing protocols RIP, BGP, OSPF, IS-IS, NHRP, Backup Routes, Port Forwarding, Host Port Routing, Ethernet Bridging, Load Balancing, IPv6 Dual Stack               |
| Security                          | HTTPS, SSH, SFTP, DMZ, Firewall (IP Filtering, MAC address filtering, Inbound and outbound Port filtering)<br>VPN Tunneling – OpenVPN, *EasyVPN, IPsec with IKEv1 and IKEv2, GRE, L2TP, PPTP<br>Authentication – RADIUS, TACACS+, *SCEP<br>Encryption – DES, 3DES, AES, RSA, MD5, SHA |
| Firmware Management               | Automatic firmware updates – server, locally via LAN or remotely via WAN<br>Over-the-Air cellular module firmware updates   |
| Diagnostic/Log                    | Status – Signal Strength, Data Usage, Detailed Long Term Statistics<br>One CLICK report – Current Configuration, Factory Identification, Routing Table<br>Log – System Log, Reboot Log, Kernel Log<br>Remote Diagnostics (via SSH)  |
| Event Engine                      | StartUp script & Up/Down script (Own rules based on Digital Inputs, Network Parameters, Data Usage, Timer, Power, Device Temperature)<br>Report Types: SMS, email, SNMP Trap  |
| Configuration                     | Web server, SSH, Four configuration switchable profiles, Automatic configuration update from server, Backup & Restore configuration   |
| Advanced Software Tools           | WebAccess/DMP – Remote Device Provisioning, Monitoring & Management Platform<br>WebAccess/VPN – Advanced Secure Networking Platform   |

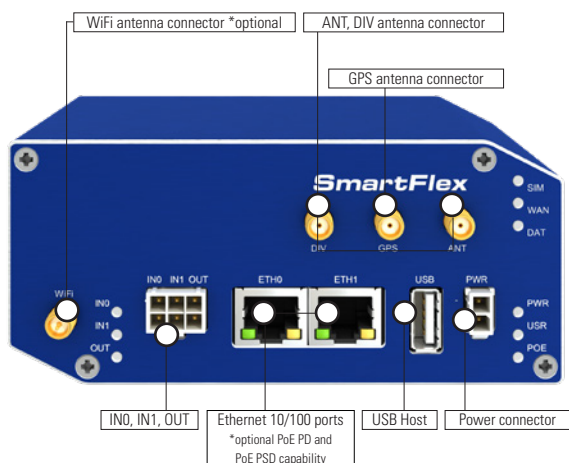
\*Functionality is available with installed RouterApp (User Module)

### Accessories

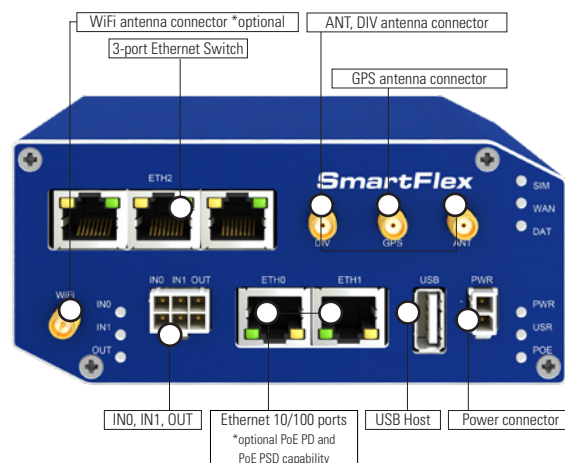
| Part Number        | Description   | Included in Package<br>BB-SR310xxxx5 | Included in Package<br>BB-SR310xxxx0 | Sold Separately |
|--------------------|---|--------------------------------------|--------------------------------------|-----------------|
| BB-2JW0124Z-C868B  | Antenna LTE, Terminal                                   | ✓                                    |                                      | ✓               |
| BB-GA.110.101111   | Antenna LTE, Magnet Mount                               |                                      |                                      | ✓               |
| BB-AW-A2458G-FSRPK | Antenna Wi-Fi, 2.4 & 5.8 GHz                            | ✓                                    |                                      | ✓               |
| BB-RPS-v3-M02-M    | SmartFlex Power Supply, 12V/1A, EU,US,UK,AU             | ✓                                    |                                      | ✓               |
| BB-RPS-v3-M02-EU   | SmartFlex Power Supply, 12V/1A, EU plug                 | ✓ BB-SR310xxx1                       |                                      | ✓               |
| BB-RPS-v3-PSE      | SmartFlex Power Supply, 48V/1.35A (power cord required) |                                      |                                      | ✓               |
| BB-PWRCORD-US      | US Power Supply Power Cord                              |                                      |                                      | ✓               |
| BB-PWRCORD-EU      | EU Power Supply Power Cord                              |                                      |                                      | ✓               |
| BB-PWRCORD-UK      | UK Power Supply Power Cord                              |                                      |                                      | ✓               |
| BB-PWRCORD-AU      | AU Power Supply Power Cord                              |                                      |                                      | ✓               |
| BB-SBD40           | DIN Rail Clip - metal                                   | ✓ BB-SR310xxx2x                      | ✓ BB-SR310xxx20                      | ✓               |
| BB-CPD3            | DIN Rail Clip - plastic                                 | ✓ BB-SR310xxx1x                      | ✓ BB-SR310xxx10                      | ✓               |
| BB-KN-v3-M02-3     | PS Cable 2-wire, MO 2 pins, 3m, v3 routers              | ✓                                    | ✓                                    | ✓               |
| BB-KIO-v3-M06-3    | IO Cable 6-wire, 3m, v3 routers                         |                                      |                                      | ✓               |

### Views

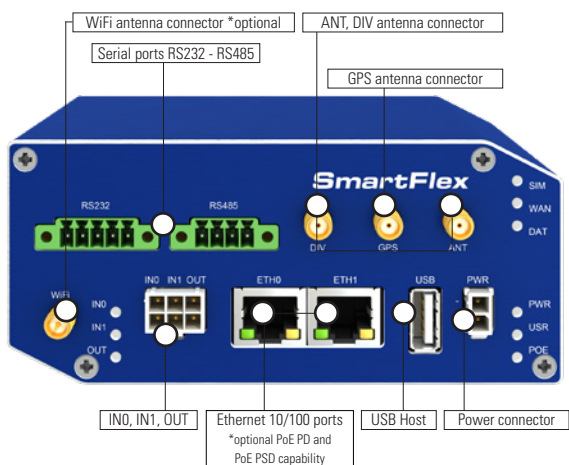
**FRONT VIEW - BB-SR310xx0xx**



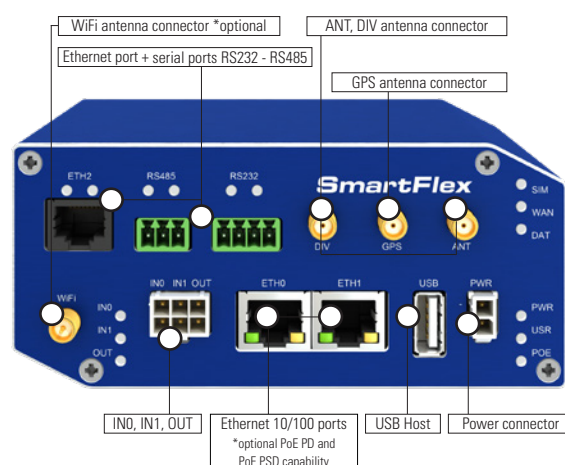
**FRONT VIEW - BB-SR310xx1xx**



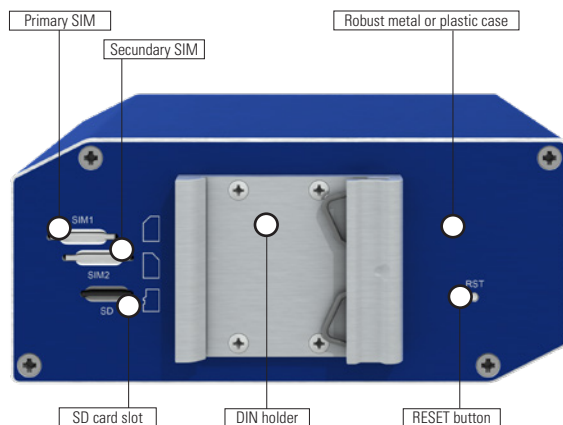
**FRONT VIEW - BB-SR310xx3xx**



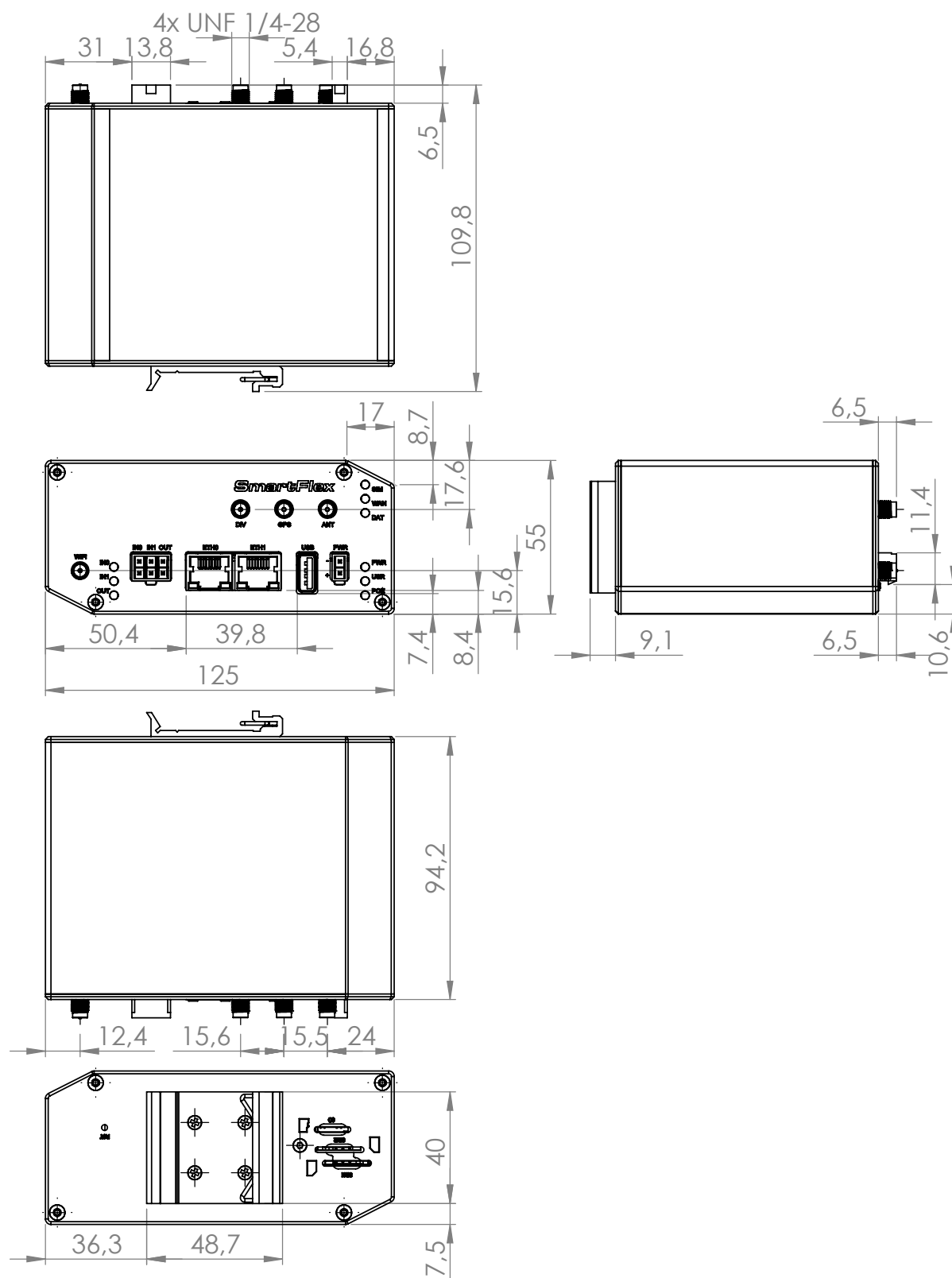
**FRONT VIEW - BB-SR310xx4xx**



**REAR VIEW**



### Basic Dimensions - Metal version



### Basic Dimensions - Plastic version

