

SecFlow-1v

Ruggedized Multiservice Gateway



- Enhanced security capabilities: stateful firewall, VPNs, automated PKI
- Resilient HSPA+/LTE cellular network uplink for maximum service continuity and built-in GNSS for location reporting
- Reduced OPEX with secure Zero Touch provisioning
- Hosting of third-party software for customized applications (edge computing)
- SCADA protocol gateway for IEC-101, IEC-104, Modbus-RTU/TCP, and DNP3 protocols
- Option for second cellular modem, WiFi, or LoRaWAN
- Embedded, isolated DC power supply
- Enhanced EMI and immunity according to IEC 61850-3, IEEE 1613*, EN 50121-4
- Certified for use in AT&T, T-Mobile and Verizon wireless networks

SecFlow[®]-1v is a multiservice gateway optimized for industrial IoT and other mission-critical applications, a member of RAD's SecFlow suite of ruggedized Ethernet products.

In addition to its communication capabilities, SecFlow-1v is an open platform suitable for quick introduction of new capabilities, by hosting third-party software, using Linux containers.

SecFlow-1v features four GbE Copper ports with PoE options and one GbE SFP port, two serial RS-232 ports or one RS-232 and one RS-485/2W port, and a cellular modem with two SIM cards for maximum link resiliency.

SecFlow-1v is equipped with serial interfaces for connectivity of legacy RTUs with new IP-based IED systems. SecFlow-1v gateway converts legacy IEC-101 protocol to IP-based IEC-104, Modbus-RTU to Modbus/TCP and encapsulated DNP3 serial to DNP over IP, enabling seamless communication from IP SCADA to both old and new RTUs. This provides a single box solution for multi-service applications and smooth migration to all-IP networks.

In addition to its cellular uplink that provides wireless connection towards the network, thanks to its modular architecture SecFlow-1v can be equipped with additional wireless technologies. When equipped with WiFi, SecFlow-1v acts as an access point, aggregating several users, such as on-site

technicians or sensors, saving the need for wired connection or multiple costly cellular connections from each device.

When equipped with LoRaWAN radio, SecFlow-1v aggregates multiple low-power low-bandwidth sensors/meters deployed over a wide area. This provides an ideal solution for rural and other non-dense areas saving CAPEX and OPEX.

The gateway is designed for installation under harsh environmental conditions. It features DIN-rail mount, IP30 protection level, wide operating temperature range (-40°C to 75°C) without fans, and EMI immunity (IEC 61850-3, IEEE 1613 and EN 50121-4).

SecFlow-1v supports several powering options that all use an embedded isolated DC power supply, to meet the harsh environmental requirements.



MARKET SEGMENTS AND APPLICATIONS

SecFlow-1v addresses Industrial IoT, for example:

- Distributed automation in secondary substations
- Smart meter and sensors concentration
- Water resources management
- Industry 4.0
- Smart and safe cities
- Out-of-band management using cellular uplink
- Smart retail

INTEROPERABILITY

SecFlow-1v operates with RAD SecurityGateway, SecFlow-1, SecFlow-2, and with third party VPN aggregators.

* This feature will be released in a future version.



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ROUTER AND VPN SERVICES

SecFlow-1v features static routing, RIPv2, OSPF, BGP, VRF and NAT/NAT-Traversal.

The device features a VPN gateway with two operation modes:

- Inter-site connectivity using IPsec or Open VPN tunnels
- Remote user access, using SSH

Inter-site VPN-based encrypted link ensures L3 transparent connection of the Ethernet networks sites.

For remote access, the router uses an SSH-encrypted tunnel, with user authentication and specific access authorization.

LAYER-2 SWITCH

SecFlow-1v provides local switching capabilities with and without VLAN support, maintaining 2K MAC addresses and 16 broadcast domains (VLAN IDs).

QoS:

- Ingress policer, egress shaper
- Classification based on: Port, 802.1p, IPv4 DCSP
- Scheduling
 - Four priority queues
 - Strict and Weighted Round Robin (WRR)

MANAGEMENT AND SECURITY

The device can be managed via the SecFlow web-based interface (HTTP/HTTPS).

For easy and safe deployment, RAD offers Zero Touch provisioning thus reducing OPEX and providing a simple way to securely deploy thousands of elements in the network.

SecFlow-1v also supports a variety of access protocols, including CLI and TFTP/SFTP.

Remote Terminal Unit/Programmable Logic Controller

Ordering options with Programmable Logic Controller (PLC) present an all-in-one-box solution from a single source for distribution automation, industrial automation, building automation, etc., supporting Modbus, DNP3, IEC-104 and BACnet SCADA masters. The devices can be programmed using:

- Ladder logic in accordance with EC 61131-3
- Instruction List (IL)
- Functional Block Diagram (FBD)
- Sequential Function Chart (SFC)
- Structured Text (ST)

SecFlow-1v devices with PLC module offer comprehensive cyber security relying on stateful firewall or SCADA firewall (optional), VPNs such as IPsec and OpenVPN, automated PKI, as well as RADview management with SIEM. Zero Touch provisioning allows secure service activation and maintenance, with low OPEX.

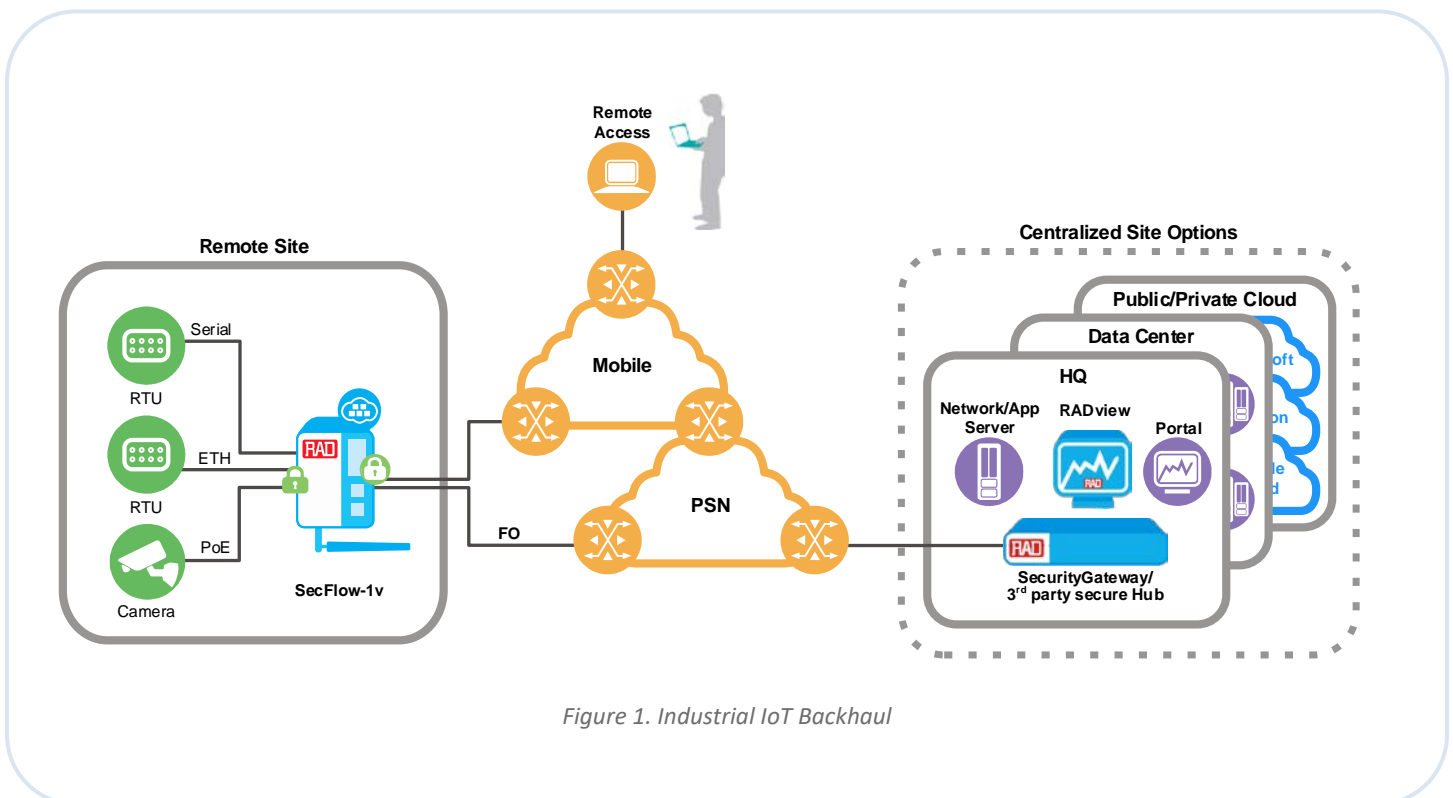


Figure 1. Industrial IoT Backhaul

Specifications

CAPACITY

| | |
|--------|---------------------------------------|
| Memory | 1 GB RAM (unless otherwise specified) |
|--------|---------------------------------------|

ETHERNET INTERFACES

| | |
|----------------|---|
| Fiber | 1 x 1000FX, SFP socket (see Ordering Options) |
| Copper | 4 x 10/100/1000BASE-T |
| PoE (optional) | 2 x 30W, 4 x 15W, 1 x 60W* |
| Max Frame Size | 1.5 kB |

SERIAL INTERFACES

| | |
|------------------|---|
| Isolation | Non-isolated/Isolated (for specific ordering options) |
| Serial Interface | 2 x RS-232 ports 1 x RS-232 + 1 x RS-485 ports |

BRIDGE

| | |
|---|----------------------------|
| Compliance | IEEE 802.1Q |
| Max. Number of Concurrent VLANs (Broadcast domains) | 16 |
| MAC Address Table | 2K |
| Operation Mode | VLAN-aware learning bridge |

MODEMS

| | |
|--------------------------------------|--|
| Dual SIM Cellular Modem | LTE bands HSPA+/EVDO networks (technology backward compatible) UMTS/HSPA+ fallback |
| FOTA | Firmware upgrade Over the Air |
| Configurable Cellular Authentication | PAP, CHAP |
| Certification (L4) | Verizon Wireless AT&T T-Mobile PTCRB |
| SIM Card | Mini SIM, 25 mm x 15 mm (0.98 in x 0.59 in) Form factor: 2FF |

| | |
|---------------------------|---|
| LoRaWAN Modem | 433MHz/868MHz/915MHz/923MHz bands SX1301 base band processor emulating 49 x LoRa demodulators, 10 parallel demodulation paths 8 uplinks channel and 1 downlink channel 2 x SX125x Tx/Rx front-ends high/low Tx power up to 25 dBm, Rx sensitivity down to -139 dBm @ SF12, BW 125 kHz UDP packet forwarder |
| LoRaWAN Server (optional) | As per specification v1.0.4 |
| WiFi Module | IEEE 802.11ac/a/b/g/n Dual band 2.4GHz or 5GHz (software selectable) Up to 8 users |

Table 1. Modem Frequency Bands

| LTE Ordering Code | Modem Category and Frequency Bands |
|-------------------|--|
| L1 | CAT 4 EMEA/Korea/Thailand LTE FDD: B1/B3/B5/B7/B8/B20 LTE TDD: B38/B40/B41 WCDMA: B1/B5/B8 GSM: B3/B8 |
| L3 | CAT 4 Australia/New Zealand/Taiwan/Brazil LTE FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE TDD: B40 WCDMA: B1/B2/B5/B8 GSM: B2/B3/B5/B8 |
| L4 | CAT 4 North America LTE FDD: B2/B4/B5/B12/B13/B14/B66/B71 WCDMA: B2/B4/B5 |
| L4A | CAT 6 North America, Anterix network 900MHz (B8) LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B20/B25/B26/B29/B30 TDD: B41 HSPA+: B1/B2/B3/B4/B5/B8 |
| L4B | CAT 7 North America, CBRS 3500MHz (B48) LTE FDD: B2/B4/B5/B7/B12/B13/B14/B25/B26/B41/B42/B43/B48/B66/B71 HSPA+: B2/B4/B5 |
| L4C | CAT 12 North America, CBRS 3500MHz (B48) LTE FDD: B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B14/B18/B19/B20/B26/B29/B30/B32/B41/B42/B43/B46/B48/B66 HSPA+: B1/B2/B4/B5/B6/B8/B9/B19 |

NETWORKING

| | |
|---------|---|
| VPN | L3 mGRE DMVPN L3 IPsec VPN OpenVPN client |
| Gateway | SCADA gateway for IEC101/104, Modbus RTU/TCP and DNP3 |

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QUALITY OF SERVICE (QOS)

| | |
|----------------------|---|
| Policing | Per port ingress policer, L1 rate, CIR |
| Egress Queues | 4 queues per port |
| Queue Mapping | Per ingress port; P-bit mapping, DSCP mapping |
| Scheduling | Strict Priority / WRR |
| Shaping | Per port egress shaper, L1 rate, CIR |

**This feature will be released in a future version.*

ROUTER

| | |
|------------------|---|
| Protocols | RIPv2, OSPFv2, BGP, VRF, IPv4, IPv6, NAT, NAT-T VRRP based on RFC 2338 |
|------------------|---|

Static routing

RTU/PLC

| | |
|----------------|---|
| Inputs | 6 x digital inputs, max DC input voltage 24 VDC 6 x analog inputs as ordering options: <ul style="list-style-type: none"> • 0-5 VDC • 0-12 VDC • 0-24 VDC |
| Outputs | 6 x digital outputs: <ul style="list-style-type: none"> • relay-based ordering option: 3 pins; NO/COM/NC, 250 VAC/5A max, 400 VDC/5A max • solid state relay-based ordering option for Class I/DIV 2 certified (Hazloc) devices: 2 pins; NO/COM, 100 VAC/100 mA max, 125 VDC/100 mA max |

Web GUI

| | |
|------------------------------------|-------------------------------|
| Northbound to SCADA Masters | Modbus, DNP3, IEC-104, BACnet |
|------------------------------------|-------------------------------|

| | |
|----------------|---|
| Masters | Up to 5 concurrent masters Modbus TCP DNP3 TCP or BACnet TCP IEC-104 |
|----------------|---|

| | |
|------------------------------|---|
| Additional I/O Points | Up to 400 Split between 2 Modbus-RTU |
|------------------------------|---|

| | |
|---------------|----------------------------|
| Slaves | Up to 10 Modbus-TCP slaves |
|---------------|----------------------------|

MANAGEMENT

| | |
|---------------------|----------------------------------|
| Control Port | RS-232 interface, RJ45 connector |
|---------------------|----------------------------------|

| | |
|-------------|---|
| DHCP | DHCP client DHCP server for WiFi clients |
|-------------|---|

| | |
|------------------|--|
| Protocols | TFTP/SFTP Web-based interface using HTTPS or HTTP |
|------------------|--|

| | |
|----------------|--|
| Options | CLI with password-protected access SMS commands USB 2.0 host for software upload* SD memory card* |
|----------------|--|

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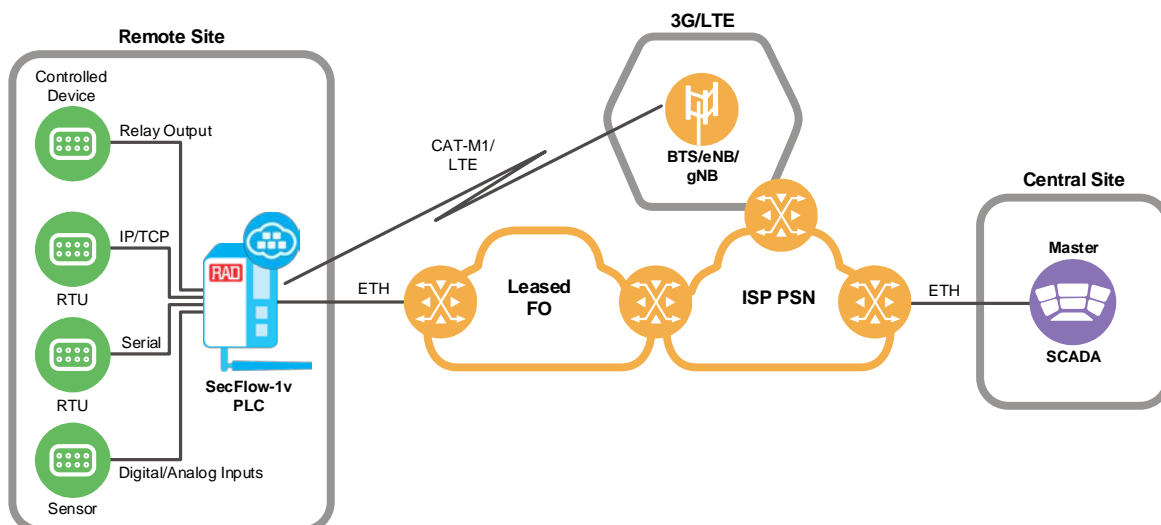


Figure 2. Automation Gateway with PLC/RTU

TIMING

| | |
|--------|--------------------|
| Timing | Local time setting |
| | SNTP |

SECURITY

| | |
|--|---|
| Firewall | Stateful firewall |
| Login | Login lockout |
| ACL | ACL with MAC white list |
| TACACS+ | Multiuser TACACS+ |
| IPsec | AES128 and AES256 GCM encryption |
| | PKI with X.509 certification |
| | IKEv1, IKEv2, SHA2 |
| | Interoperability with SCEP server 2012 and higher |
| Port-Based Network Access Control (PNAC) | As per IEEE 802.1X-2100 |
| | Port-based authorization |
| | PEAP-MSCHAPv2. PEAP |
| | EAP-TLS authentication methods |

RESILIENCY

| | |
|-------------------------|--|
| Routing | Dynamic routing, OSPFv2, BGP |
| Cellular ISP Redundancy | SIM cards backup or dual modem support |
| IPsec VPN Redundancy | Policy-based |
| | Route-based |

MONITORING

| | |
|------|--------------------------|
| GNSS | GPS – American (default) |
| | Galileo – European |

DIAGNOSTICS

| | |
|--------------------|----------------------------|
| Interface Counters | Per port |
| Syslog | |
| SNMPv3 | GET and traps |
| LEDs | Including alarm indication |
| Dry Contacts | 2-in and 2-out |
| SMS | Status indication |

GENERAL

| | |
|------------|---|
| Compliance | Enhanced EMI and immunity according to EN 50121-4 |
| | IEC 61850-3 |
| | IEEE 1613* |

Environment

| | |
|-----------------------|--|
| Storage Temperature | -40 to 85°C (-40 to 185°F) |
| Operating Temperature | Enclosure 1: -40 to 65°C (-40 to 149°F) |
| | Enclosure 2: -40 to 75°C (-40 to 167°F) w/o PoE -40 to 65°C (-40 to 149°F) with PoE |
| | Enclosure 3: -40 to 60°C (-40 to 140°F) |
| Humidity | Up to 90% |

Note: The actual chassis and operating temperature depend on the ordering options.

Physical

Table 2. Dimensions and Weight

| | Enclosure 1 (E1) | Enclosure 2 (E2) | Enclosure 3 (E3) |
|----------------|-------------------|------------------|------------------|
| Height mm (in) | 138 (5.43) | 157.2 (6.19) | 146 (5.74) |
| Width | 53.3 (2.1) | 82.8 (3.25) | 91.2 (3.59) |
| Depth | 123.3 (4.85) | 150 (5.9) | 132.6 (5.22) |
| Weight | 0.88 kg (1.94 lb) | 1.4 kg (3.1 lb) | 1.6 kg (3.5 lb) |

Power

| | |
|-------------------|---|
| Power Supply | Embedded isolated power supply |
| | 12V: 11–30 VDC |
| | 48V: 44–57 VDC (Dual power inlet) |
| | WDC: 20–60 VDC (Dual power inlet) |
| Power Consumption | Enclosure 1: < 10 W |
| | Enclosure 2: |
| | <ul style="list-style-type: none"> Without PoE: 17W With PoE: 77W (17W regular + 60W PoE) |
| | Enclosure 3: |
| | <ul style="list-style-type: none"> Without PoE: 18W With PoE: 78W (18W regular + 60W PoE) |

**This feature will be released in a future version.*

Ordering

Legend

SF-1V/Ex/@/R/#/\$%/Lx/*/Lx/&/LRx/PLC/^/!/**/CN

| | | |
|-----------|--|--|
| Ex | Chassis | |
| E1 | E1 enclosure | |
| E2 | E2 enclosure | |
| E3 | E3 enclosure | |
| @ | Power Supply | |
| 12V | 12 VDC (11–30 VDC) | |
| 48V | 48 VDC (44–57 VDC) | |
| WDC | Wide-range 20–60 VDC | |
| R | Random-access memory (RAM) | |
| 2R | 2GB | |
| # | Ethernet Ports | |
| 4U1S | 1 x 1000FX, 4 x 10/100/1000BASE-T ports | |
| \$ | Power over Ethernet (PoE) | |
| POE | PoE on 4 x 10/100/1000BASE-T | |
| 2PA | PoE on 2 x 10/100/1000BASE-T for RAD's Airmux (except for Airmux-5000D) and standard PoE for the remaining 2 x 10/100/1000BASE-T ports | |
| % | Serial Ports | |
| 2RS | 2 x RS-232 ports | |
| 2RSM | 1 x RS-232 port, 1 x RS-485 port | |
| Lx | Cellular Ports | |
| HSP | HSPA+ (high-speed packet access) modem, 3.5 Gb | |
| L1 | LTE CAT-4 modem for Europe | |
| L3 | LTE CAT-4 modem for Oceania and Latin America | |
| L4 | LTE CAT-4 modem for North America | |
| L4A | CAT 6 North America, certified for Anterix network 900MHz (B8) | |
| L4B | LTE-A CAT-7 modem for North America, certified for CBRS private networks | |
| L4C | LTE-A CAT-12 modem for North America, certified for CBRS private networks | |

Notes:

- L1(3,4,4A,4B,4C) means that any of L1/L3/L4/4A/4B/L4C options can be ordered.
- In options with dual modems, both modems are of the same type (HSP, L1, L3, L4, L4A, L4B or L4C).
- The cellular modem is supplied with two matching antennas (see **Supplied Accessories**).

| | | |
|--|----------------|--|
| * | GNSS | |
| G | Integrated GPS | |
| Note: The GPS modem is supplied with one antenna (see Supplied Accessories). | | |
| & | WiFi Interface | |
| WF | Wireless LAN | |
| Note: The WiFi modem is supplied with two matching antennas (see Supplied Accessories). | | |

| | | |
|---|---|--|
| LRx | LoRaWAN Modem | |
| LR1 | LoRaWAN modem with 8 channels and frequency scheme according to EU433 | |
| LR2 | LoRaWAN modem with 8 channels and frequency scheme according to EU868 | |
| LR3 | LoRaWAN modem with 8 channels and frequency scheme according to AU915 | |
| LR4 | LoRaWAN modem with 8 channels and frequency scheme according to US915 | |
| LR6 | LoRaWAN modem with 8 channels and frequency scheme according to AS923 | |
| Note: The LoRaWAN modem is supplied with one antenna matching the frequency ordered. | | |
| PLC | Programmable Logic Controller | |
| PLC | 6 digital inputs, 6 digital outputs, 6 analog inputs, 5 VDC | |
| PLC12 | 6 digital inputs, 6 digital outputs, 6 analog inputs, 12 VDC | |
| PLC24 | 6 digital inputs, 6 digital outputs, 6 analog inputs, 24 VDC | |
| PLCGO | Class I/DIV 2 certified (Hazloc) - 6 digital inputs, 6 digital outputs, 6 analog inputs 5 VDC, solid-state relay-based | |
| PLCGO12 | Class I/DIV 2 certified (Hazloc) - 6 digital inputs, 6 digital outputs, 6 analog inputs 12 VDC, solid-state relay-based | |
| PLCGO24 | Class I/DIV 2 certified (Hazloc) - 6 digital inputs, 6 digital outputs, 6 analog inputs 24 VDC, solid-state relay-based | |
| Note: PLC software is included upon ordering the /PLC ordering option. | | |
| ^ | Ruggedized Options | |
| RG | IEC 61850-3 compliant | |
| RL | EN 50121-4 certified | |
| GO | Class I/DIV 2 certified | |
| ! | uCESP Container | |
| CSP | RS232 control signals (DTR and DCD) on S1 port managed by the uCESP container | |
| ** | Analog current loop ports with 4-20mA support | |
| 3CL | 3 ports | |
| 6CL | 6 ports | |
| CN | LoRaWAN Container | |
| AP | Actility LRR with enterprise TPE OCP support (on premise Actility servers) | |
| AS | Actility LRR with enterprise TPE SAAS support (tenant on Actility cloud servers) | |
| AW | Actility LRR with Service providers TPW support (Actility server for service providers) | |
| AE | Actility LRR for PoC with limited support of gateways and sensors | |

RECOMMENDED CONFIGURATIONS

SF-1V/E1/12V/4U1S/2RS/HSP
SF-1V/E1/12V/4U1S/2RS/HSP/G
SF-1V/E1/12V/4U1S/2RS/L1(3,4,4A,4B,4C)
SF-1V/E1/12V/4U1S/2RS/L1(3,4,4A,4B,4C)/G
SF-1V/E1/12V/4U1S/2RSM/HSP
SF-1V/E1/12V/4U1S/2RSM/L1(3,4,4A,4B,4C)
SF-1V/E1/WDC/4U1S
SF-1V/E1/WDC/4U1S/2RS/RL
SF-1V/E1/WDC/4U1S/2RS/HSP
SF-1V/E1/WDC/4U1S/2RS/L1(3,4,4A,4B,4C)
SF-1V/E2/12V/4U1S/2RS/HSP/G/WF
SF-1V/E2/12V/4U1S/2RS/HSP/G/HSP
SF-1V/E2/12V/4U1S/2RS/L1(3,4,4A,4B,4C)/L1(3,4,4A,4B,4C)
SF-1V/E2/12V/4U1S/2RS/L1(3,4,4A,4B,4C)/G/L1(3,4,4A,4B,4C)
SF-1V/E2/12V/4U1S/2RS/L1(3,4,4A,4B,4C)/G/WF
SF-1V/E2/12V/4U1S/2RS/L4/G/GO
SF-1V/E2/12V/4U1S/2RSM
SF-1V/E2/48V/4U1S/POE
SF-1V/E2/48V/4U1S/POE/2RS
SF-1V/E2/48V/4U1S/POE/2RS/HSP
SF-1V/E2/48V/4U1S/POE/2RS/HSP/G/WF
SF-1V/E2/48V/4U1S/POE/2RS/L1(3,4,4A,4B,4C)
SF-1V/E2/48V/4U1S/POE/2RS/L1(3,4,4A,4B,4C)/L1(3,4,4A,4B,4C)
SF-1V/E2/48V/4U1S/POE/2RS/L1(3,4,4A,4B,4C)/G/WF
SF-1V/E2/48V/4U1S/POE/2RS/L1(3,4,4A,4B,4C)/G/L1(3,4)
SF-1V/E2/48V/4U1S/POE/2RS/L1/G/LR1
SF-1V/E2/48V/4U1S/POE/2RS/L1/G/LR2
SF-1V/E2/48V/4U1S/POE/2RS/L3/G/LR3
SF-1V/E2/48V/4U1S/POE/2RS/L3/G/LR6
SF-1V/E2/48V/4U1S/POE/2RS/L4/G/LR4
SF-1V/E2/48V/4U1S/POE/2RSM/L1/G/LR2
SF-1V/E3/WDC/4U1S/2RSM/L4/G/PLCGO
SF-1V/E1/WDC/4U1S/2RSM/L4/G
SF-1V/E2/48V/4U1S/POE/2RSM/L4/G/LR4
SF-1V/E3/48V/4U1S/POE/2RSM/L4/PLC
SF-1V/E2/48V/4U1S/POE/2RS/L1(3,4,4A,4B,4C)/WF
SF-1V/E2/48V/4U1S/2PA/2RS
SF-1V/E2/WDC/4U1S
SF-1V/E2/WDC/4U1S/L1/WF
SF-1V/E2/WDC/4U1S/2PA/2RS/HSP
SF-1V/E2/WDC/4U1S/2PA/2RS/L1(3,4,4A,4B,4C)

SF-1V/E2/WDC/4U1S/2RS/L1(3,4,4A,4B,4C)/WF
SF-1V/E2/WDC/4U1S/2RS/HSP/WF
SF-1V/E2/WDC/4U1S/2RS/HSP/G/HSP
SF-1V/E2/WDC/4U1S/2RS/L1(3,4,4A,4B,4C)/G/L1(3,4,4A,4B,4C)
SF-1V/E2/WDC/4U1S/2RSM
SF-1V/E3/48V/4U1S/POE/2RS/L1(3,4,4A,4B,4C)/PLC
SF-1V/E3/48V/4U1S/POE/2RSM/L1(3,4,4A,4B,4C)/PLC12
SF-1V/E3/48V/4U1S/POE/2RSM/L1(3,4,4A,4B,4C)/PLC24
SF-1V/E3/WDC/2R/4U1S/2RS/L4/G/L4/PLC
SF-1V/E3/WDC/2R/4U1S/2RS/L4/G/PLC
SF-1V/E1/12V/4U1S/2RS/L1(4)/G/RG
SF-1V/E1/12V/4U1S/2RSM/L1(4)/G/RG
SF-1V/E1/WDC/4U1S/2RS/L1(L4)/G/RG
SF-1V/E1/WDC/4U1S/2RS/CSP*
SF-1V/E1/WDC/4U1S/2RS/L1/CSP*
SF-1V/E1/WDC/4U1S/2RSM/L1/G/RG
SF-1V/E2/WDC/4U1S/2RS/L1(3,4,4A,4B,4C)/RG
SF-1V/E3/48V/4U1S/POE/2RSM/L1/G/PLC/3CL
SF-1V/E3/48V/4U1S/POE/2RSM/L1/G/PLC/6CL
SF-1V/E2/48V/4U1S/POE/2RSM/L1(3,4,4A,4B,4C)/G/LR4/AP
SF-1V/E2/48V/4U1S/POE/2RSM/L1(3,4,4A,4B,4C)/G/LR4/AS
SF-1V/E2/48V/4U1S/POE/2RSM/L1(3,4,4A,4B,4C)/G/LR4/AW
SF-1V/E2/48V/4U1S/POE/2RSM/L1(3,4,4A,4B,4C)/G/LR4/AE
SF-1V/E2/48V/4U1S/POE/2RS/L4B/G
SF-1V/E2/48V/4U1S/POE/2RS/L4C/G

Please contact RAD Sales for more details on future products.

SPECIAL CONFIGURATIONS

Zero Touch Provisioning

PS-ZT-PRE_CONFIGURATION

One Zero Touch pre-configuration service package per each SecFlow-1v unit

and either of the following:

PS-ZT-STAGING

Local Zero Touch staging service package (one per project)

PS-ZT-ONSITE-STAGING

Onsite Zero Touch staging service package (one per project)

Please contact your local RAD partner for additional configuration options.

** This ordering option is part of RAD's roadmap. Regarding availability, follow updates of official rollout and release announcements.*

SUPPLIED ACCESSORIES

SF-ANT-GPS-PAS-3DBI-MAG/3M

GPS passive antenna, 3m, for options with integrated GPS

SF-ANT-HSP-2DBI-SMA

HSP antenna, 2 dBi, for options with HSPA+ (high-speed packet access) modem

SF-ANT-LTE699-4DBI-SMA

LTE antenna, 4dBi, for options with LTEEx modems

SF-ANT-WIFI-DUALBAND-3DBI-SMA

WiFi dual band antenna, 3 dBi, for options with WiFi modem

SF-ANT-LoRA-3DBI-SMA

LoRaWAN antenna, 3 dBi, for options with LoRaWAN modem

Note: The LoRaWAN modem is supplied with one antenna matching the frequency ordered: EU433, EU868, AU915, US915, AS923.

OPTIONAL ACCESSORIES

CBL-RJ45/D9/F/6FT

Serial console and RS-232 data ports cable

CBL-RJ45/D9/F/DM

RJ45 to DB9 female shielded cable for /CSP option, 2m

CBL-SF-RJ45-RS485

RS485 open-ended shielded cable

CBL-SERIAL-RJ45C-RJ45R

RAD to CISCO adapter cable

RM-DIN-SINGLE

Rack Mount adaptor for single DIN RAIL device

RM-DIN-19

19" Rack Mount adaptor for DIN RAIL device

USB holder kit

For SF-1V/E2/12V/4U1S/2RS/L4/G/GO ordering option

Power Supplies

SF-AC-48VDC-40W (to be used with non-POE options)

External DIN rail AC to 48 VDC power supply, 40 W, -20 to 60°C (-4 to 140°F); 20 W at 60°C (140°F) and above

SF-AC-48VDC-120W

External DIN rail AC to 48 VDC power supply, 120 W, -20 to 60°C (-4 to 140°F); 60 W at 65°C (149°F) and above

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SF-24VDC-48VDC-240W

24 VDC to 48 VDC power supply, 240 W, -40 to 50°C (-40 to 122°F); 120 W at 65°C (149°F) and above

SF-AC-12VDC-40W

AC to 12 VDC power supply, 40 W, -20 to 60°C (-4 to 140°F); 20 W at 65°C (149°F) and above

Antennas

SF-ANT3G-2M

Outdoor antenna for SecFlow 3G cellular modem, 2m connecting cable, 2.2 dBi, 824-894 MHz/900 MHz/1800 MHz/1900 MHz

SF-ANT3G-5M

Outdoor antenna for SecFlow 3G cellular modem, 5m connecting cable, 2.2 dBi, 824-894 MHz/900 MHz/1800 MHz / 1900 MHz

SF-ANT4G-2M

Outdoor antenna for SecFlow 4G cellular modem, 2m connecting cable, 3 dBi, 699-960 MHz/1710-2170 MHz/2500-2690 MHz

SF-ANT4G-5M

Outdoor antenna for SecFlow 4G cellular modem, 5m connecting cable, 3 dBi, 699-960 MHz/1710-2170 MHz/2500-2690 MHz

SF-ANT-LTE700-7DBI-MGNT

Outdoor magnetic base antenna for SecFlow-1v LTE options and for LoRaWAN 868 and 915 MHz, 7 dBi

Transceivers

For the list of available transceivers, see the [Pluggable Transceivers data sheet](#) at www.rad.com

Note: It is strongly recommended to order this device with **original RAD SFPs installed**. This will ensure that prior to shipping, RAD has performed comprehensive functional quality tests on the entire assembled unit, including the SFP devices. RAD cannot guarantee full compliance to product specifications for units using non-RAD SFPs.

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