

## SYSTEM DESCRIPTION M900S-AP and M900S-SU

The M900S-AP access point (AP) is a wireless point to multi-point digital spread spectrum data transceiver which, when setup in a cell having at least one subscriber unit (M900S-SU), functions as a wireless MAC layer ethernet access solution. Each AP communicates up to 128 SUs using a proprietary polling algorithm and 900 MHz spread spectrum technology. The AP accepts full or half duplex Ethernet IEEE 802.3 data packets from a 10/100BaseT port, breaks the packets into smaller packets, and transmits them at 3.25 Mbit/sec rate over the air. The unit only transmits packets when they are destined for a MAC address stored in an internal table or when it is polling the SUs for data to transmit upstream. The AP utilizes a 60 degree azimuth integral patch antenna to achieve wide coverage range. The RF power level is fixed inside the AP but can be reduced for a smaller radius of operation.

The AP is located at the Internet Service Provider's network center (usually mounted on a tower or rooftop) and is connected to the wired internet via Ethernet cable.

The SU is located on the Internet Service Provider customer's premises (mounted outside) and is connected to a PC or other Ethernet device.

The AP wirelessly polls the SUs to see if they have data to send to the internet in the "upstream" direction. The AP sends data coming from the Internet wirelessly to the SUs in the "downstream" direction. The system is similar to a cable modem system (except it is wireless) where the SU is the modem located in your home and the AP is the Server at the Cable company.

Firmware running on the AP and SU manages the flow of information out to the Ethernet port. The firmware is loaded into the FLASH memory on the unit and runs when the unit is powered on. The only difference between the AP and SU is the firmware. The circuitry and antenna, enclosure is EXACTLY the same, The printed circuit board is the same for both AP and SU. The functioning of the hardware is the same for both models, including RF channel changing, RF power output, TX/RX switching, and anything that can affect emissions.

Functionally, the only difference between the units is that the AP is the Master and the SU is the slave. The SU will only transmit when the AP authorizes it to. The AP also maintains the synchronization between the multiple SUs.

The entire system is grounded via the aluminum enclosure which is directly connected to Earth ground using an 18 AWG wire. The patch antenna system is built in and requires no further grounding. If external antennas are used, they are grounded via the coaxial cable connection to the unit, but it is recommended that they be grounded to earth as an additive measure.