# Ethernet Terminals In Wireless LAN

**Introduction**
The Ethernet data collection products manufactured by Computerwise, Inc., are designed to connect directly to a local area network (LAN) with a standard Ethernet cable.  In some applications a cable connection might not be easily achievable and a wireless solution would be preferable.  Many network installations are being expanded to include wireless access for laptop computers and other wireless devices.  This application note will explain a simple technique for connecting standard Ethernet data collection devices to the wireless network (WLAN).  It is assumed that the reader is familiar with basic Ethernet and wireless system components and no attempt is made to explain these networking concepts.

**System Overview**
A wireless network (WLAN) typically consists of one or more Access Points (AP) which are phyically connected to the Ethernet network (LAN).  These access points allow wireless client devices to transparently connect to other devices on the hardwired network.  The standard Ethernet data collection devices (i.e. ET214, ET215, EC205, EP210, etc.) can connect to the WLAN access point using a Wireless Ethernet Client (WEC) adapter.  The WEC communicates with the access point over the WLAN and with the data collection device through the Ethernet interface.  Once the WEC is properly configured and installed the data collection device appears on the network as if it were a hardwired connection.  Figure #1 illustrates a system with a data collection terminal connected to the LAN using a WEC adapter.
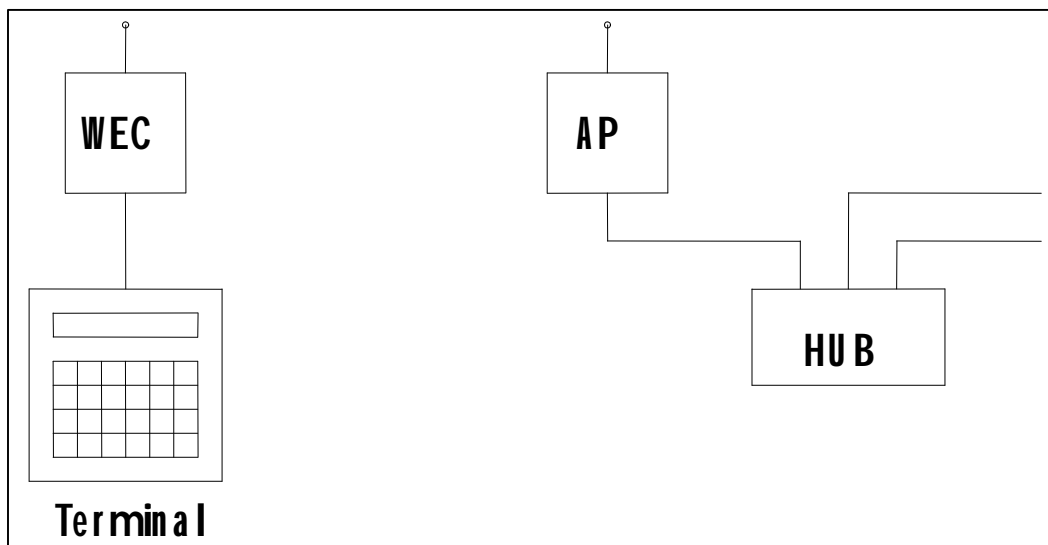


Figure #1

**The WEC Adapter**
The Wireless Ethernet Client (WEC) adapters are available from a number of different suppliers and are relatively low cost.  Likewise, many of the newer access point modules can be configured to operate in a WLAN Client mode.  Table #1 lists several manufactures of low cost WEC adapters and model numbers.

| Manufacturer | Model Number | Web Site |
|---|---|---|
| Dlink | DWL-810 | www.dlink.com |
| Linksys | WET11 | www.linksys.com |
| SMC | SMC2670W | www.smc.com |
| NDC | NWH2210 | www.dnc.com.tw |

Table #1

**WEC Installation**

The Wireless Ethernet Client (WEC) adapter connects to the data collection device using a standard Ethernet cable.  As with any radio communications system the WEC location is important.  Radio waves reflect and refract from buildings, walls, furniture and other objects which can degrade the system performance.  Following are some general guide lines for WEC placement.

- Locate as high as possible and in an open area if at all possible.
- Try to provide a clear "line of sight" to the access point.
- Avoid locations near metal objects such as file cabinets, cubical walls and industrial machines.
- Keep as far away as possible from microwave ovens.  These ovens use the same frequency band (2.4 – 2.5 Ghz) as the WLAN components and can cause considerable interference.

**WEC Configuration**

All of the WEC adapters listed in Table #1 are provided with configuration software by the manufacturer.  Many are "plug & play" and may not require any additional configuration. Generally, the operating mode should be set for "Infrastructure" (not "Ad Hoc") and in some cases an IP address and Netmask may need to be set. If the WLAN access point is using WEP security or a specific communication channel then special configuration with the provided software will be required.