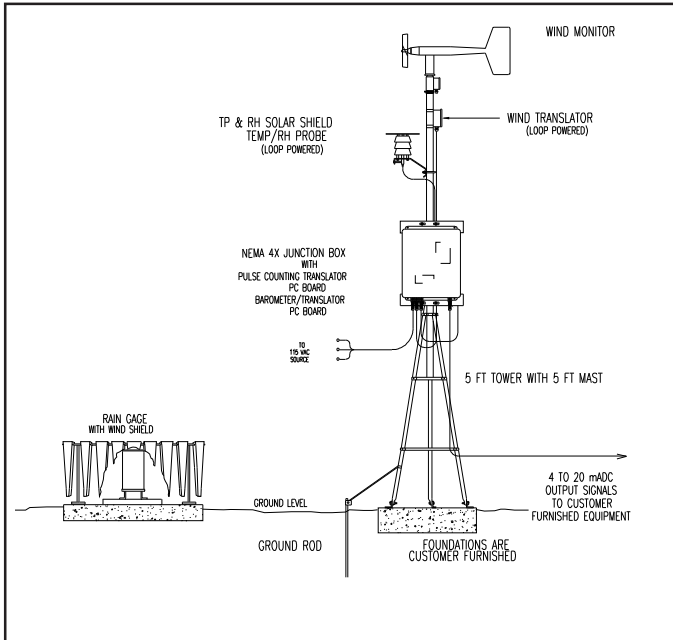
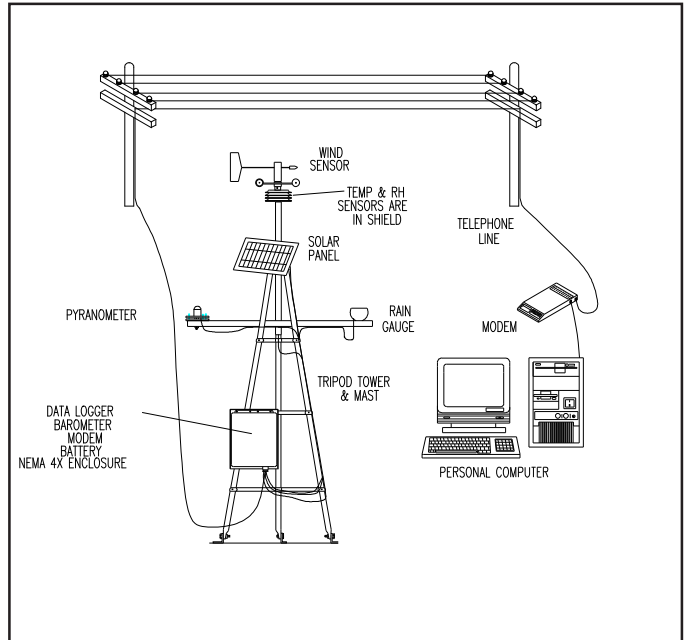


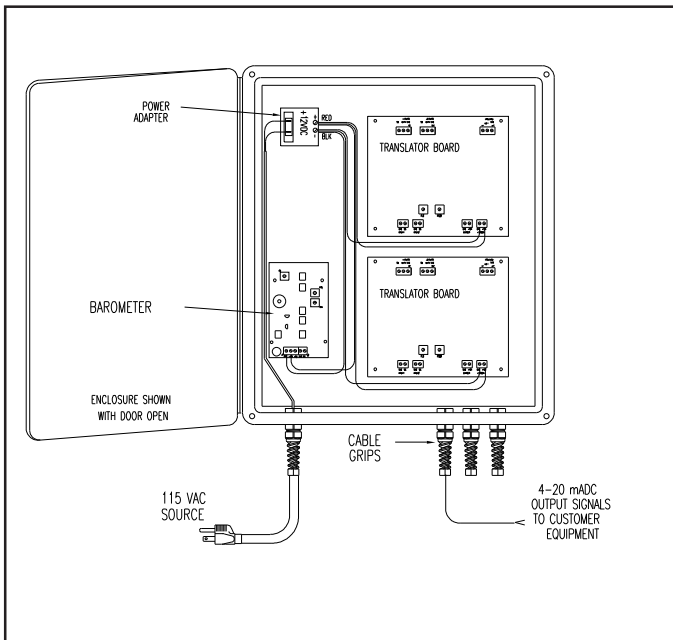
Applications



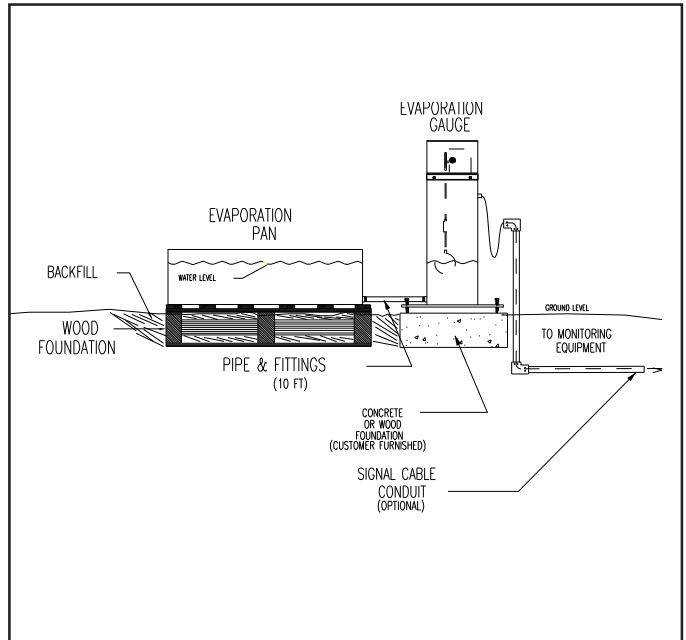
Tripod Tower Weather Station with 4-20 mA Outputs



Remote Weather Station with Telephone Communications



NEMA-4X Enclosure with Two Translator Boards and Analog Barometer



Typical Analog Output Evaporation Station

System Design

NovaLynx is an industry leader in the design, fabrication, and integration of meteorological systems. Using the best possible combination of sensors, signal conditioning, and data acquisition technologies, NovaLynx can customize and fit any combination of meteorological sensors and signal processing equipment to customer applications.

Sensors with signal translators provide a variety of systems supporting analog signal displays, digital panel meter displays, and strip chart recordings. NovaLynx also provides several data logger based systems for digital signal acquisition, display, and storage, with additional data processing using personal computers. Telemetry systems for either analog or digital data allow transmission of data to locations at some distance from the sensors.

In addition to the standard array of meteorological sensors, signal conditioners, data loggers, and recorders, NovaLynx provides towers, sensor masts and mast adapters, cables, solar radiation shields with or without fans, and installation assistance.

Special system hardware not shown in this catalog can be provided. NovaLynx can design and manufacture custom mounting hardware such as sensor mounting fixtures, enclosures, and panels, as well as configure standard products to meet unique requirements. Additional information is provided in the catalog sections covering specific system components. Custom system quotations with descriptive literature are available upon request.

Regulation Conforming Systems: NovaLynx can configure custom systems to meet strict governmental regulations. Government agencies such as the U.S. Environmental Protection Agency (EPA) and Department of Energy (DOE) require certain manufacturers and industries to monitor pollution generating processes by using meteorological monitoring equipment to track pollution dispersion. These special systems require specific meteorological instrumentation, installed with specific hardware at exact elevations and in some cases at more than one location. The sensors and signal conditioning equipment provided by NovaLynx allows easy configuration in order to meet the rigid requirements involved in these strict applications.



Tower-Mounted Meteorological Monitoring System

Site Considerations

Selecting the proper site for weather station sensors is just as important as selecting the proper sensor for a particular application. Siting standards should be given first consideration in sensor placement, however, unusual requirements may call for special siting techniques. The discussion below refers to installations in the northern hemisphere.

Wind Speed and Direction

The quality of wind sensors can be diminished by poor exposure to local topography. Placement of the wind sensors should follow standards established by agencies such as the World Meteorological Organization (WMO) and the United States National Weather Service (NWS).

The standard exposure of wind instruments over level, open terrain is 33' (10 meters) above the ground (WMO 1971). Open terrain means the distance between the wind sensors and the nearest obstruction is at least ten times the height of that obstruction.

For roof-mounted sensors, the exposure should be at a height that is at least 1.5 times the height of the building. For extremely tall buildings this rule can be difficult to follow. For tall buildings, the sensors should be at least 33' (10 meters) above the roof or above the tallest obstruction on the roof. Whenever possible the sensors should be placed on the upwind side of the building. Ventilation and exhaust vents must be avoided.

For ground-mounted sensors near a building, the upwind side of the building is preferred, with the sensors located at a distance that is at least one times the height of the building. The downwind side of the building requires that the sensors be located at a distance of five to ten times the height of the building. When wind sensors are located too close to a building "wind-milling" of the direction vane will occur and the speed sensor will measure artificial gustiness. The sensors are actually monitoring the wind turbulence created by the building.

While the WMO standard for siting wind sensors at ten meters above ground level provides ambient wind monitoring, in micrometeorology wind sensors are often placed closer to the ground. This allows for wind monitoring in the environment of interest. Multiple levels of sensors may be used to provide more detailed wind information.

Preliminary studies of the sensor location should be performed using flags, smoke, or by temporary installation of the sensors.

If wind sensors must be located amid vegetation, pick a spot that is about equidistant from the tallest trees or shrubs. A clearing with a diameter at least ten times the height of the tallest tree or shrub would be ideal. Even with the best possible location amid vegetation, it is sometimes necessary to add some height to the sensor mast in order to get better exposure.

Relative Humidity, Air Temperature, and Dew Point Temperature

These sensors should be installed in a properly ventilated solar radiation shield for accurate ambient measurements. Cotton region type instrument shelters provide the standard aspiration and solar protection for these sensors. Mast-mounted self aspirated and motor aspirated shields may provide adequate exposure as well, depending on the application. Mast-mounted sensors are usually positioned at "shelter" height, or about four feet above ground level, on the north side of the mast.

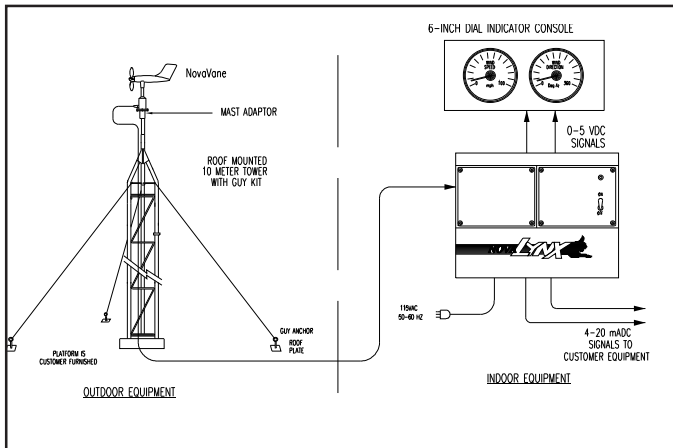
Solar Radiation

Solar radiation sensors may be mast or pole mounted. They should always be located in an open area, in full view of the sun at all times. When mast mounting or placing in an area where nearby obstructions are present, locate the sensor to the south of all obstacles. This will prevent shadows created by the nearby obstacles from passing over the sensor. These sensors are usually mounted approximately two meters above ground level.

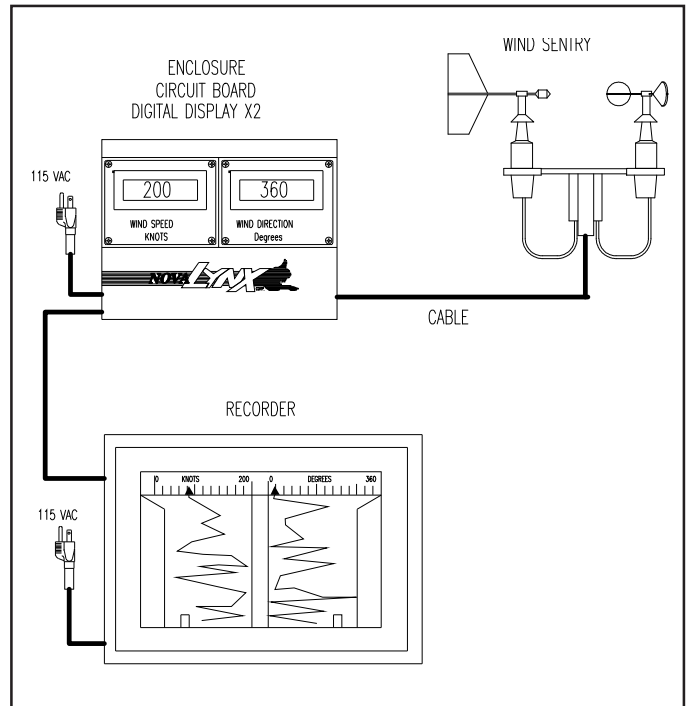
Precipitation

Whether heated or unheated, rain and snow sensors should always be located in a relatively flat, open area. Some obstructions can be helpful to block the wind for more accurate catch. However, leaves from trees can cause increased gauge maintenance. If natural wind breaks are not available, a wind screen accessory is recommended.

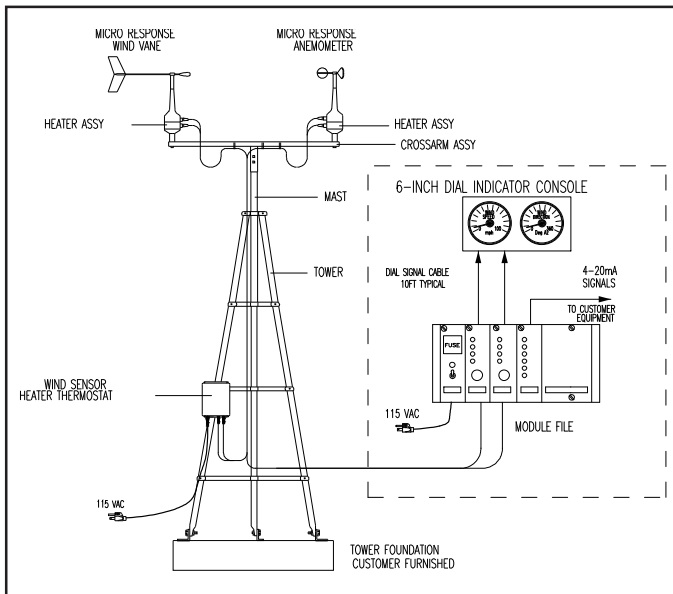
Typical System Drawings



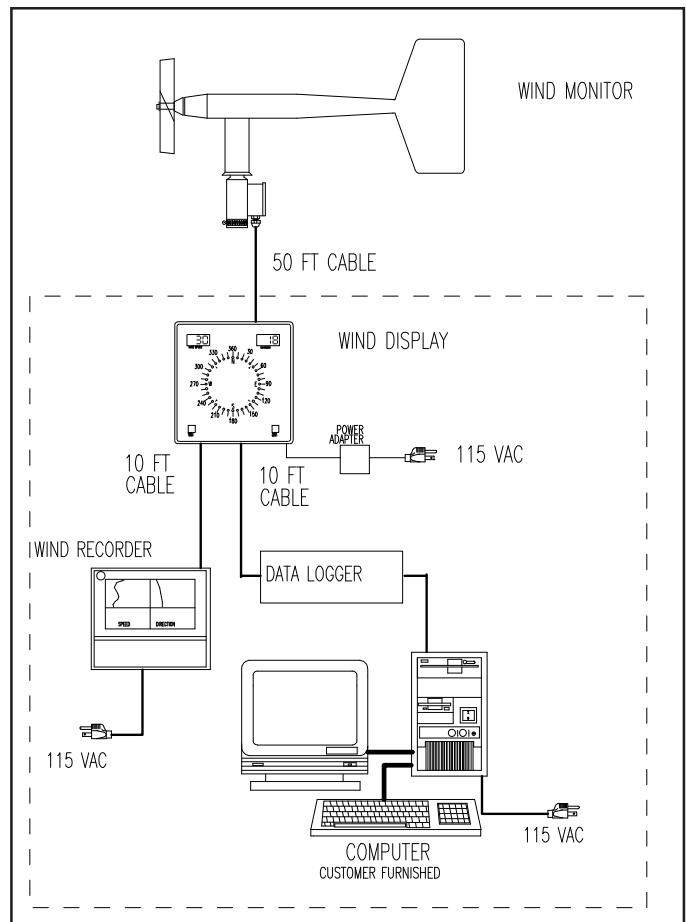
Indicating Wind Station



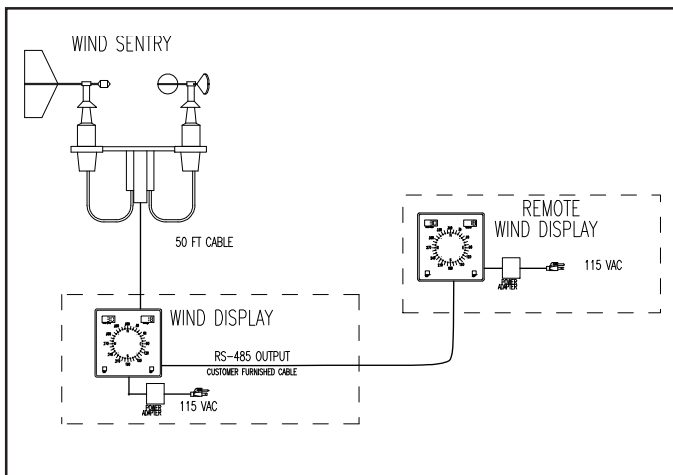
Recording and Indicating Wind Station



Indicating Wind Station with 4-20 mA Outputs

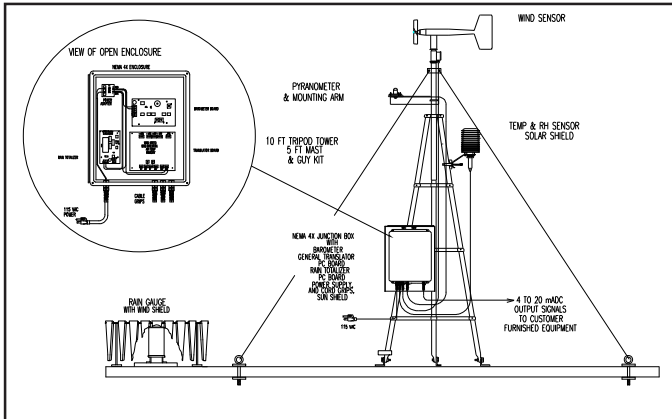


Recording, Indicating, and Logging Wind Station

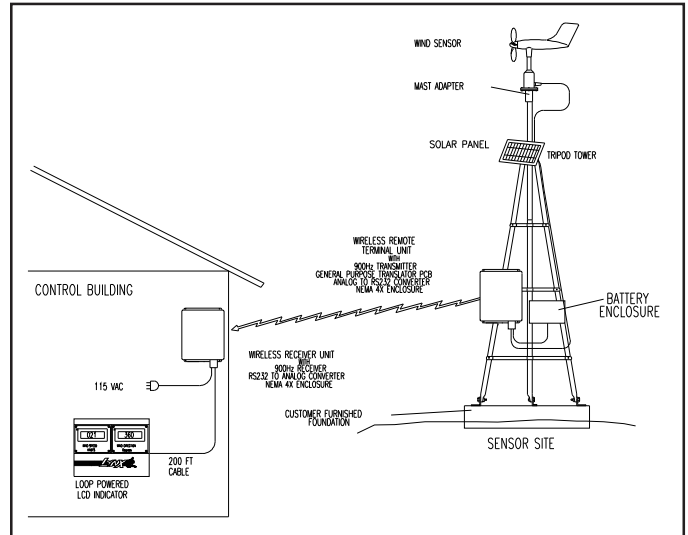


Wind Station with Wind Tracker Displays

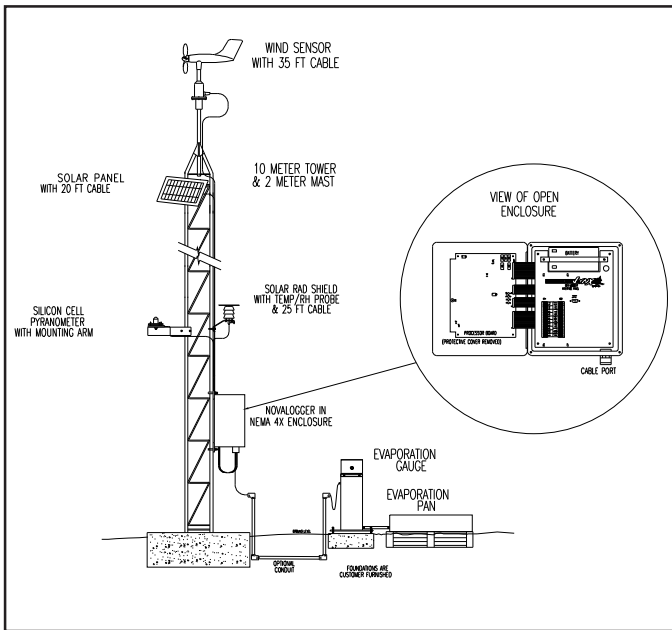
Typical System Drawings



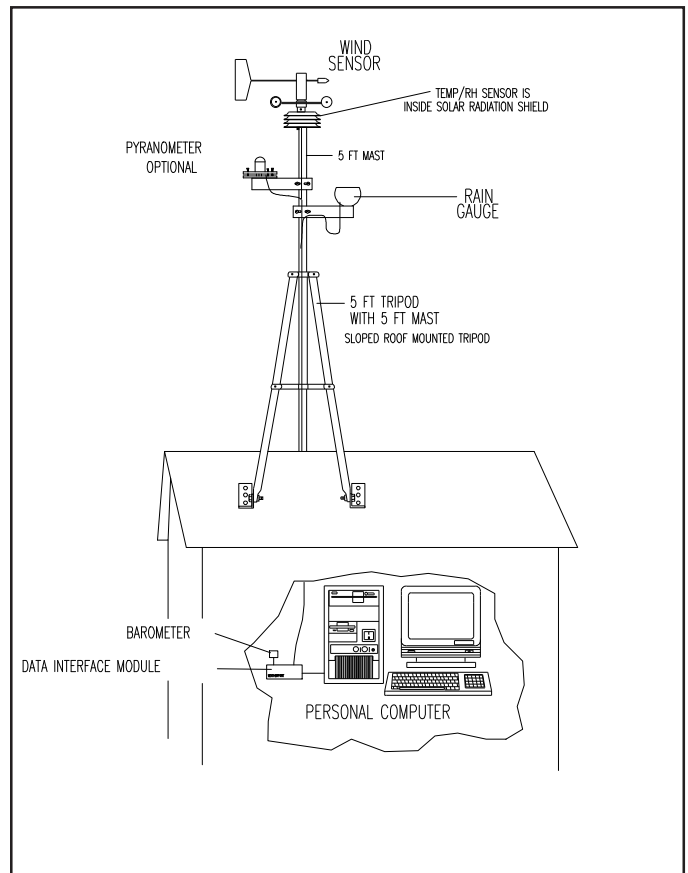
Roof Mounted Weather Station



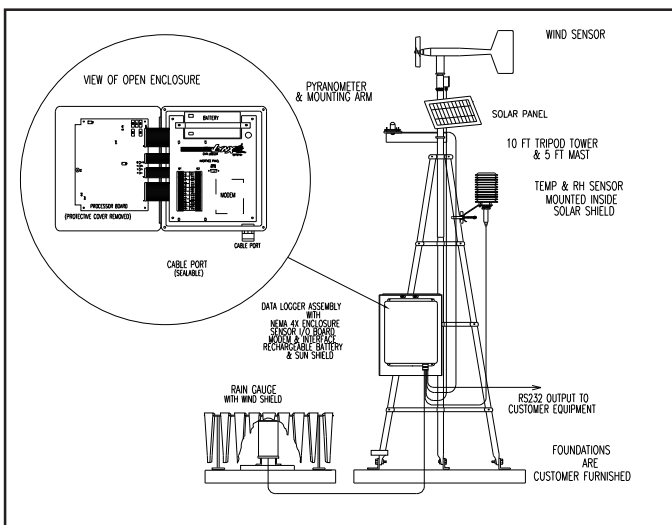
Indicating Wind Station with Wireless Data Transmission System



Ten Meter Tower Weather Station



PC-Based Weather Station



Data Logger Weather Station

Typical System Drawings

