

ENWIN Utilities SCADA Technical Requirements

Control and Monitoring

All Generation projects over 12kW will be required to have control and monitoring capability in place. The following is a list of basic monitoring and control provisions required for each Generation project over 12kW.

1. Control Requirements

All generation connected to the ENWIN Utilities Distribution System are required to provision for real time control by ENWIN Utilities. Provision will include, but is not limited to the following:

- a) The ability to remotely dispatch the generation (on/off) using a DNP 3.0 Status/Control point only (0 or 1 sent to device).

2. Monitoring Requirements

All generation connected to the ENWIN Utilities Distribution System are required to provision for real time monitoring by ENWIN Utilities. Provision will include, but is not limited to the following:

DNP 3.0 Analogue Quantities which include the following:

- a) Net active power (total kW) output and reactive power (kVAR) flow and direction for the total of the facility
- b) Power Factor (PF)
- c) Phase to phase (preferred) or phase to neutral voltages
- d) Three phase currents

DNP 3.0 Status point(s):

- a) Consolidate Connection Status (HV1/LV1)

Alarms:

- a) Where facilities exist to provide independent monitoring of the interface protection fail, provision shall be made for an alarm signal to be generated and transmitted to ENWIN Utilities as a DNP 3.0 Status point;

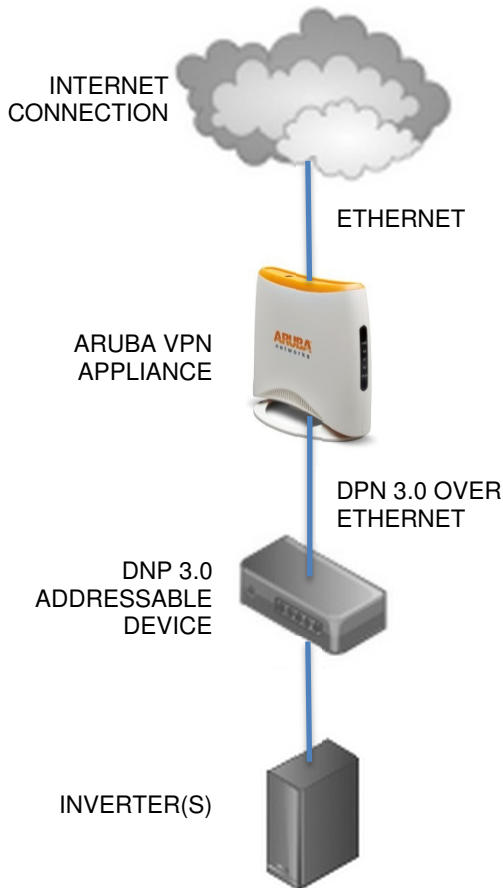
The telemetry reporting rates shall be as follows:

FUNCTION	PERFORMANCE MEASURE
Data Measurements	Less than 10s from change in field – monitoring quantity
Equipment Status change	Less than 10s from change in field – monitoring quantity
Scan Period for data measurements	Minimum 4s (ENWIN SCADA to scan device)
Scan Period for equipment status	Minimum 4s (ENWIN SCADA to scan device)
Time to disable all devices after field device receives signal from ENWIN SCADA	Maximum 90s under any and all conditions

3. Medium and Protocol

- a) The Owner shall provide real-time operating information to ENWIN Utilities as specified in Section 3 above directly from the equipment as described in b).
- b) Real time operating information provided to ENWIN utilities shall be from a single Intelligent Electronic Device (IED) at the Owner's facility to ENWIN Utilities control center using Distributed Network Protocol (DNP 3.0 protocol) only.
- c) Further provision to accommodate IEC 61850 is also required.
- d) Ethernet port on DNP field device will be 9999.
- e) DNP slave address to field device to be 1.

Connection Diagram



ENWIN Supplied

- Aruba VPN Appliance
- IP Address of DNP Addressable Device

Customer Supplied

- DNP Addressable Device and All Programming
- Internet Connection
- Inverter(s)
- Ethernet Cabling
- Ensure Port UDP 4500 is open outbound on internet (for Aruba VPN using NAT Traversal)