

APPLICATION NOTE

DNP3.0 Protocol Using DNP3 in Kingfisher RTUs

DNP Protocol

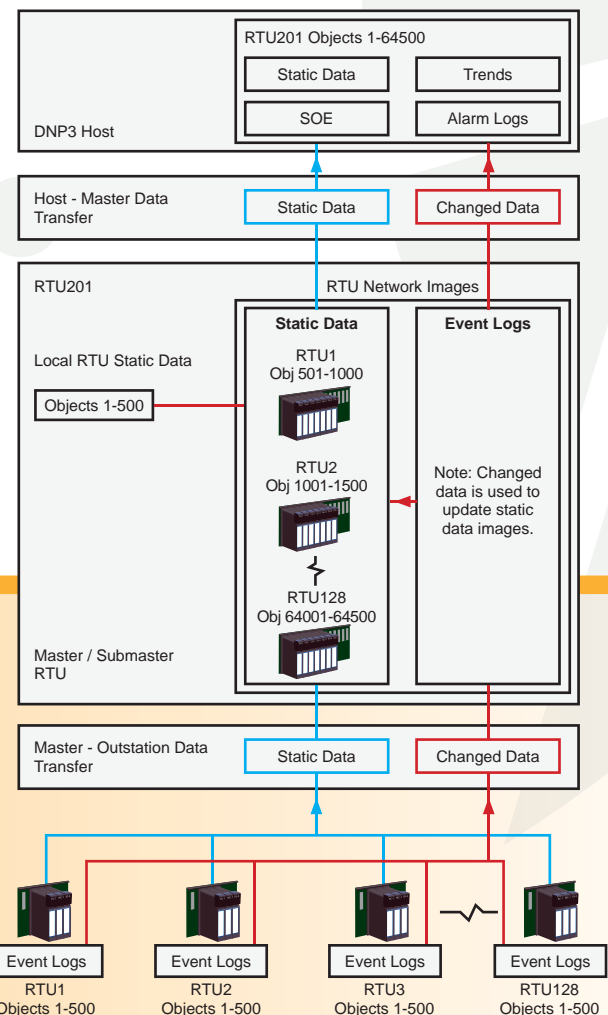
DNP3 (Distributed Network Protocol) is emerging as an industry standard protocol for RTU communications (especially by the water, gas and power industries). The DNP3 protocol has evolved from a proprietary protocol developed for the power industry by HARRIS (a Canadian RTU manufacturer now part of the GE group of companies). They have defined a number of implementation standards, including compliance levels, allowing developers to state their compliance as 'level 1', 'level 2' etc. Level 1 compliance is very basic, but implies that a reply will always be given to a DNP3 message. Level 2 compliance is considered acceptable for basic realtime data transfer.

Kingfisher RTU Solution

The implementation of DNP3 protocol with Kingfisher RTUs requires adding a protocol driver to the standard RTU firmware and inclusion of ladder logic to manage the transfer of data. For a Kingfisher RTU to communicate within a DNP3 communications network, not only must the system messages be in the DNP3 format, but appropriate data structures must be created within the RTU. The data structures in DNP3 are all objects which can be assigned to different classes. A DNP3 RTU needs to know which objects will have to be returned to the master station on a data request.

In DNP3 protocol an object is for example a digital input, a digital output, an analog input, an analog output or a counter. All objects have elements assigned to them. For example a digital input may have an online bit, a remote forced bit, a local forced bit, etc. assigned to it. An object can also be assigned to a class. Assigning an object to class 1, 2 or 3 will generate time stamped object change records in the RTU. These object change records can then be requested by the master station or reported to the master station.

Overview of Kingfisher DNP3 slave functionality



Document Reference: App Note - DNP Protocol.imdd, Mod: 21/08/06

