DNP3

DNP3 (Distributed Network Protocol) is an open protocol for the transmission of data using serial and IP communication that is primarily used by electrical utility industry. DNP3 was developed for the monitoring, data acquisition and control of power system equipment and for ensuring interoperability between thousands of IEDs, RTUs and operational SCADA systems.

OUR SOLUTION

DNP3 outstation

OPAL-RT provides the DNP3 outstation (slave) driver for transmission and reception of data and control commands between the simulator and master systems such as RTU, gateways, remote control center and SCADA systems.

In this operating mode, the simulator emulates measurements from one or many field outstation devices and sends data to the real master systems that monitor analog and binary data points by continuously polling data points from simulator or by activating unsolicited responses. When unsolicited responses are activated, the simulator only transmits the data point values when changes are detected. Remote control centers and SCADA systems send the control commands back to the outstation devices.

The DNP3 outstation driver provides asynchronous TCP/IP communication interface and an IP aliasing mechanism allowing to assign different IP addresses to each outstation instance even if a single network interface is used.

DNP3 Master

OPAL-RT also provides the DNP3 master driver for transmission and reception of data and control commands between the simulator and outstation devices.

In this operating mode, the simulator measures analog and binary data points receives from IEDs and send back control commands. Master supports both polling mode and unsolicited responses.

KEY FEATURES

- **Support Master and outstation modes**
- **Supports analog and binary inputs**
- **Supports up to 200 simulated DNP3 outstation devices**
- **Supports event priority (classes)**
- **Supports common data format (variations)**
- **Supports polling and unsolicited response modes**
- **Configurable local and remote link addresses per outstation interface**
- **Custom/independent IP addresses per slave interface**

SPECIFICATIONS

Standard	**IEEE 1815-2010**
Maximum # of events	2048 binary or analog events per slave interface
Minimum scan rate	1 millisecond for analog and binary
Protocol Modes [1]	TCP/IP

OPAL-RT SOFTWARE COMPATIBILITY

SOFTWARE	DNP3 SLAVE
RT-LAB	☑
HYPERSIM	☑

THIRD-PARTY HARDWARE†

NAME	REQUIRED	SKU	DESCRIPTION
Intel Quad-port Ethernet board	☐	EXPI9404PTL	Dispatch Ethernet traffic over multiple ports to increase bandwidth

†Certain systems may not have PCIexpress slots available for these cards. Prior to ordering and/or installing, check with your local OPAL-RT representative to ensure compatibility.