

InTek UC (Universal Concentrator) is a SCADA protocols gateway and concentrator software that provide simultaneous connections to Multi-Masters (Slave Protocols on InTekUC) and Multi-Slaves (Master Protocols on InTekUC).

InTekUC could be utilized on wide-range protocols application, from simple protocol converter (one to one conversion) to complex/large multi-protocols Front End system.

Each of the configured Slave protocol will have its own database as well as its own CoS (Change of State) buffer. CoS Time Stamp is maintained from the acquired downstream device/protocol time stamp.

Port/Channel and/or Unit Redundancy are available as native Parallel redundancy as well as Hot-Standby Automatic Switch-over redundancy.

The availability of Dummy Slave Emulator function with real-time pre-defined dynamic change of value and state provide a simple and easy commissioning tools for testing with the real Master Control / Local HMI without the need of real Slave Devices. With this feature, InTekUC could also be utilized as protocol tester.

Master Protocol on InTekUC has an average calculation value feature, where the real-time value is accumulated on certain period and be transmitted as real-time average IOA.

Each of the downstream device could be mapped on specific CAASDU / LRU (Logical Remote Unit) on InTekUC IEC 60870-5-104 Slave protocol. This provide a tree/hierarchy database structure for easy maintenance. Detection of device downstream communication fail is presented on specific LRU Fail IOA Tag for each device. With this feature, General Interrogation command could be performed to each LRU (downstream device) partially. For IEDs connection, each of its point/register could have same IO Address on IEC 60870-5-104 Slave. The different is just on CAASDU address, where it's specific for each CAASDU. Disabling polling/connection to particular downstream device could be just performed with disabling the associated LRU.

The products is developed on 2003/2004, and already implemented in many Electrical Substations on the period of 2005 to 2010 (already more than 5 years in operation) for connection to various Masters (Siemens SINAUT Spectrum, WinCC, PowerCC, Schneider Citect, Telvent OASyS UX 6.2, GE Fanuc iFix, COPA-DATA zenOn, Dongfang DF8000, and some others), and to various Slaves/IEDs (Selta RTU, GE Harris D20 RTU, GE D60/T60/F35 Protection Relays, Areva Micom P12x and P543 Protection Relays, Siemens Siprotec 7SJ6x Protection Relays, Schneider Sepam 1000+ Protection Relays, ABB SPA protection relays, Actaris SL-7000 Energy Meter, Schneider PM-700 Digital Feeder Meter, and some others).

InTek UC firmware is available to be run on any Embedded Computer device with multi-serial ports and either Linux or WindowsXP operating system. As default, InTek UC is supplied together with MOXA RISC-based Embedded Computer with Linux operating system. All of the MOXA products are fanless, and available for standard temperature (-10 to 60°C) and for extended temperature (-40 to 75°C) operating range.

The recommended MOXA products/type as InTekUC hardware platform are :

**A. MOXA DA-681-DPP-[T]-LX**

- . IEC 61850-3 certified for power substation automation systems (DPP-T model)
- . Intel Celeron M 1 GHz processor with 512 MB built-in DDR2 SODIMM socket
- . Six 10/100 Mbps Ethernet ports
- . 4 isolated RS-232 and 8 isolated RS-485 ports
- . 1 CompactFlash socket, 1 IDE ATA-150 connector for storage expansion
- . USB 2.0 ports for high speed peripherals
- . Dual 100-to-240 VAC/VDC power input (single power model is available)
- . 19-inch rackmount model, 1U Height

**B. MOXA UC-8410-[T]-LX**

- . Intel XScale IXP-425 533 MHz processor
- . 128 MB RAM on-board, 32 MB flash
- . 8 x RS-232/422/485 serial ports [software-selectable]
- . Dual 10/100 Mbps Ethernet for network redundancy
- . Input Voltage: 12 to 48 VDC (3-pin terminal block)  
[external MeanWell DC-DC Converter is available for 36 to 72VDC Input]
- . DIN-rail or Wall Mount

**C. MOXA IA-240-[T]-LX**

- . MOXA ART 32-bit ARM9 192MHz industrial processor
- . 64 MB RAM, 16 MB flash onboard
- . 4 x RS-232/422/485 serial ports
- . Dual 10/100 Mbps Ethernet for network redundancy
- . SD socket for storage expansion
- . Input Voltage: 12 to 48 VDC (3-pin terminal block)  
[external MeanWell DC-DC Converter is available for 36 to 72VDC Input]
- . DIN-rail or Wall Mount

**Application as InTek eTM Master**

InTek eTM Master is fully utilized InTek UC application platform, so all of the InTek UC features are available for InTek eTM Master. In addition, the InTek eTM Master will be equipped with specific application for ODBC/SQL database storage as well as connection to GSM Modem for SMS data interchange.

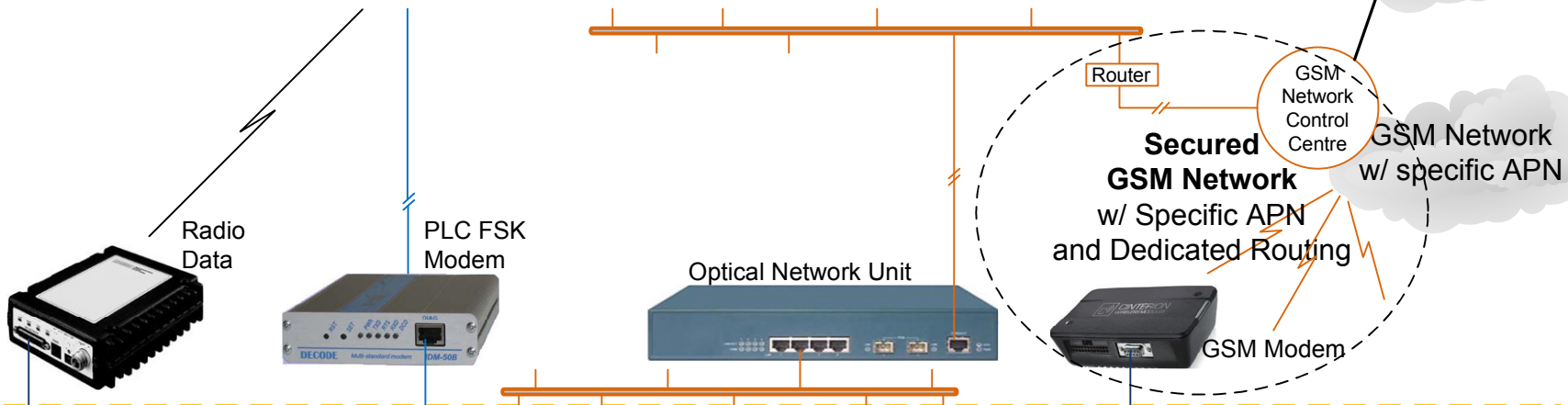
**Application as SCADA Front End**

InTek UC have been utilized as SCADA Front End since 2005, with the protocol/interface to Master SCADA are OPC DA Server and IEC 60870-5-104S w/ Multi-LRUs support.

Multi Control Centres w/ Multi Protocols



- Protocols to Upstream :**  
*[ running concurrently ]*  
 IEC 60870-5-101 (Serial)  
 IEC 60870-5-104 (Ethernet)  
 DNP 3.0 (Serial)  
 DNP 3.0 TCP (Ethernet)  
 Modbus RTU (Serial)  
 Modbus TCP (Ethernet)  
 EDF HNZ RTU (Serial)  
 EDF HNZ Concentrator



Substation Automation

- Protocols to Downstream :**  
*[ running concurrently ]*  
 IEC 60870-5-101 (Serial)  
 IEC 60870-5-103 (Serial)  
 IEC 60870-5-104 (Ethernet)  
 IEC 61107 / 62056 (Serial)  
 DNP 3.0 (Serial)  
 DNP 3.0 TCP (Ethernet)  
 Modbus RTU (Serial)  
 Modbus TCP (Ethernet)  
 EDF HNZ RTU (Serial)  
 ABB Indactic33 (Serial bit-sync)  
 ABB SPABus (Serial)  
 Dummy Slave Emulator

