VERTICROSS

Data Concentrator Unit - VData-09

About Verticross

Verticross is an automation company focused on transforming customers' businesses through state-of-the-art technology. Specialising in power, water, gas, oil, transportation and security, our mission is to become a global leader in communication systems, data acquisition and analytics by the year 2024.

Verticross is led by a dynamic team of professionals who possess a wealth of experience in applied research and development in the areas of communication and data transfer protocols for embedded systems in the automation of energy, water and gas utilities.

The communication systems form an integral part of data acquisition for billing, audit, decision support and analytics. Our products include automatic meter readers, energy management solutions and pump monitoring systems, while our services encompass consultancy, installation, commissioning, facilities management and IT support.

Our products and solutions conform to international standards and can be seamlessly integrated with legacy system. In addition, they can be customised in order to address and exceed customer expectation.

Data Concentrator Unit - VData-09

The Data Concentrator Unit (DCU) automates transmission and sub-transmission of substations. It uses real-time data from grid assets to provide intelligence for critical actions. This allows the user to optimise their investments, protect primary equipment and avoid instances of grid overload.

Designed to handle highly complex systems in grid automation. The DCU can interface with all kinds of Intelligent Electronic Devices (IEDs), parallel I/Os, serial connection and communication media. All this real time data can then be transmitted to the user's central Meter Data Acquistion System (MDAS) to support analysis and decision making.

DCU Architecture

DCU

Features

- Compatible with multiple operating systems including Raspbian, Windows 10 IoT Core, Linux, OSMC and RetroPie
- 32-bit Octa-Core ARM Cortex processor
- Ethernet protocols: TCP/IP, UDP, DHCP, Modbus, DNP3 TCP
- Serial protocols: Modbus RTU Master, Modbus RTU Slave, Modbus ASCII Master, Modbus ASCII Slave, DNP3 Slave
- On-board 16GB SD card for backup data storage
- Supports IEC61870-5-101, IEC61870-5-104, IEC61850-3, DNP3
- RS232/RS485 Modbus communication
- 16 channel Optically isolated inputs
- 0.5ms millisecond digital input scanning resolution with Time Stamp
- Redundant power supply
- 8 channel potential free contact outputs
- Measures 0-20ma/4 to 20 ma current from transducer
- 8 channel Analog inputs
- Communication - GSM/GPRS/4G and RF (Optional)
- GSM/GPRS/4G Communication interface
- Protection: IP51
- Built-in overload, short-circuit and surge protection
- Interface with feeder meters, transformers, transducers, breakers, etc.

Specifications:

Central Processing Unit

CPU	4× ARM Cortex-A53, 1.2GHz
RAM	1GB LPDDR2 (900 MHz)
Memory	16GB (expandable up to 256GB)

Communication Interface

Description	RS-232		RS-485	
Connector	DB-9 Female		DB-9 Female/ Phoenix 3 pin	
Type	Serial Port		RS-485/Modbus	
Bit rate	100 bit/s – 57600 bit/s		100 bit/s – 9600 bit/s	
Signal lines	TxD	PIN 2	Data-(A)	PIN 1
	RxD	PIN 3	Data+(B)	PIN 2
	GND	PIN 5	GND	PIN 3
Voltage Level	typical: ± 10V DC		Peak to peak ± 2.5V DC	

Ethernet Interface

Type	IEEE 802.3, 10/ 100BaseT
Connector	RJ 45

Operating Voltage

90 V to 270 V AC	max. 100 mA
18 V to 36 V DC (Optional)	--
110 V / 220 V DC (Optional)	--

Indicators

Red LED	Power
Blue LED	Network status
Green LED	Transmission
Yellow LED	Reception
Green LED	Health/Status

Physical Attributes

Dimensions	335 mm x 190 mm x 170 mm (Width x Height x Length)
Housing type	Metal housing (IP51)
Mounting	Tabletop
Weight	Less than 1500 gms

Immunity Test

Surge IEC 61000-4-5, 2005	4 KV /6KV Performance criteria A
Conducted Emission CISPR 22	150 KHz to 30 MHz Performance criteria A
Radiated Emission CISPER 22	30 MHz to 1000 MHz Performance criteria A
Electrostatic Discharge IEC 61000-4-2, 2008	6 KV in Contact Discharge 8 KV in Air Discharge
Radiated Susceptibility IEC 61000-4-3, 2010	80 MHz to 1000 MHz (3 V/m) Performance criteria A
Electrical Fast Transient IEC 61000-4-4, 2011	4 KV Performance criteria A

Environmental Conditions

Nominal operating temperature range	-25 °C to +60 °C
Max. operating temperature	-40 °C to +65 °C
Relative humidity	5% to 95 % (non-condensing)

Other Features

Communication	Ethernet, 2G/4G, Wi-Fi, RF
Data storage	Up to 90 days
Digital Inputs	16 Channels
Digital Outputs	8 Channels
Analog Inputs	8 Channels

Power Supply

Input Voltage	90V AC to 270V AC
Output Voltage	5.0V DC
Output Current	2.5 Amps max
Protections	Short circuit and overload
Surge handling capacity	4KV /6KV as per IEC 61000-4-5
Connection type	Single phase 2 wire

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