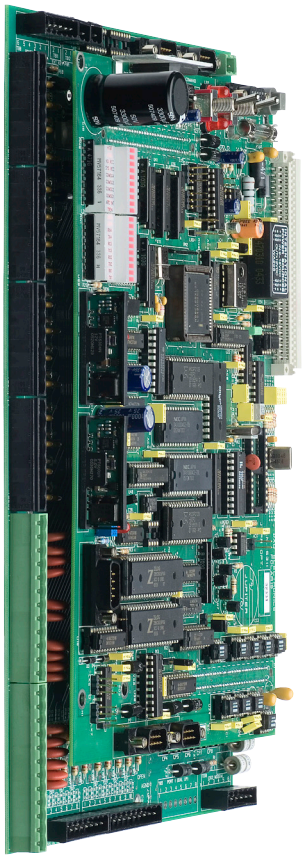
Polaris

Combination Module

ADVANCED COMMUNICATIONS / DIGITAL I/O SUPPORT



The Callisto Polaris module is ideal for communications-based applications requiring a limited number of digital inputs and control outputs

Designed to suit both pole mount and distributed substation applications, the compact Polaris module combines powerful communications technology with digital input/output capability. The unit provides 16 status/alarm inputs, 8 command outputs configurable as 4 on/off pairs, and 4 serial data ports. Port configurations include RS232, RS485, Bell 202 1200-baud modem, and dial-up modem with support for both synchronous and asynchronous, byte or bit-oriented protocols.

Serving as a "combo" node in the Callisto™ network, the Polaris efficiently collects data from intelligent electronic devices (IEDs) and other Callisto nodes, processing information locally or transferring data to one or more master stations. The module incorporates on-board power supplies and a termination card providing physical connections for input/output wiring along with signal conditioning and protection.

When combined with an IoA1 analog processing module, the Polaris forms the core of the dynamic Elara III RTU, which supports precise analog input monitoring and power system calculations in addition to the standard Polaris features.

KEY FEATURES

- Multi-port communications with master stations and IEDs
- Combines the functionality of Callisto IoC1, IoD1, and IoE1 processing modules
  - 8 command relay outputs, configurable as 4 on/off pairs with select-before-operate protection
  - 16 status/alarm inputs
  - 4 communications ports
- Ideal for pole mount or distributed substation applications
- 12 volt output for charging battery and powering radio
- Compact, cost-effective solution for low point count requirements
- Extensive protocol library
- User-configurable automation applications, including programmable logic, file archiving, and SOE recording
- Direct 24VDC/VAC input power
- Capacity to add analog input processing capabilities in Elara III remote configuration

DAQ ELECTRONICS

PROCESSING

Processors

- 12MHz Intel 80C188 Microcontroller
  - 8 bit data bus
  - 20 bit address bus
  - 2 DMA channels
  - Direct addressing to 1MB memory and 64KB I/O

Operating System

- Industry standard Nucleus RTX real-time, multi-tasking system
- Simple integration of user-defined applications and algorithms

Memory

- Intel 80C188
  - 128K x 8 Flash Memory
  - 128K x 8 EPROM
  - 128K x 8 RAM (2)
  - 1K x 1 Serial EEPROM

COMMUNICATIONS

Serial Input/Output

- 4 independent serial communications ports, individually configurable as RS232 or RS485
- Up to 19.2 kbps, individually configurable per port
- Byte or bit-oriented, synchronous or asynchronous protocols
- On-board 1200 baud, V21, V23 modem for private circuit operation
- Support for external modems over leased line and/or PSTN circuits
- Fiber, radio, trunked radio, and packet radio media also supported

Local Area Network

- DAQ Voyager protocol operating on Callisto standard ArcNET LAN at speeds up to 2.5 megabits per second

Configuration

- Via CallistoView software package from any Callisto host node

Connections

- All connections via Polaris termination board

PROTOCOL SUPPORT

Master Station and IED

- Conitel
- DNP 3.0
- Modicon MODBus
- PMS-91
- QUICS IV
- SES-92
- Landis & Gyr 8979

Master Station

- CDC Type I and Type II
- Harris 5000/6000
- IEC 870-5 Profile 103
- PG&E 2179

IED

- Cooper 2179
- Eaton Incom
- IEC 870-5 Profile 101 (Siemens)
- JEM 1
- PSE Quad 4 Meter
- Quantum Qdip
- Schweitzer Relay Protocol (221/251/351)
- SPABUS
- Transdata Mark V Meter

In addition to the protocols listed, DAQ can also accommodate special user requirements

ADDITIONAL SPECIFICATIONS

Isolation

- Status
  - Opto-isolation: >1.5kV, input to input and input to ground
  - Surge withstand: 5kV ANSI/IEEE C37.90.1989 SWC using termination 8D, IoDT
- Commands
  - 2.2kV AC, coil to contact and contact to contact (off-board relays): 1000V rms contact to coil (on-board relays)
  - Surge withstand: 5kV ANSI/IEEE C37.90.1989 SWC (off-board relays)
- Communications
  - Modem: 2w/4w 500V transformer isolation with 300V gas tubes in primary
- Electrical interference
  - Insulation/isolation: IEC 255-5
  - High frequency disturbance: IEC 255-22-1
  - Fast transient/burst: IEC 801-4
  - Electrostatic discharge: IEC 801-2

Environmental

- Operating range: -20 to +70˚C
- Storage range: -20 to +70˚C
- Relative humidity: 5 to 95% non-condensing
- Vibration: 5 to 65Hz

Dimensions

- Standard 4-layer Double EuroCard PCB
- 7 7/8" x 10 3/8" (200mm x 265mm)

DAQ ELECTRONICS

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