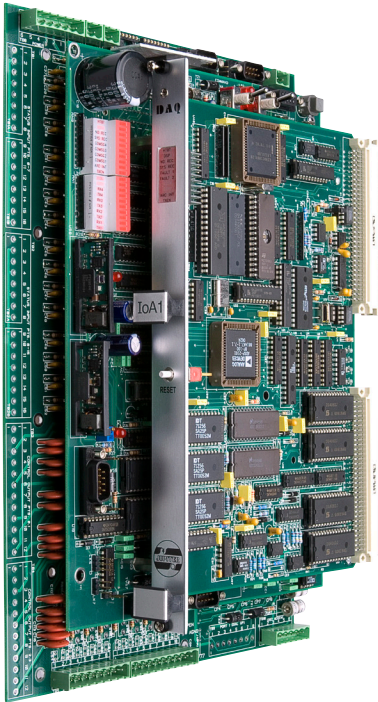


CBC

Capacitor Bank Controller

CAPACITOR SWITCHING WITHOUT LINE DISTURBANCE



Integrated into the powerful Elara III remote, the CBC provides a cost-effective capacitor switching solution

When configured to monitor I/O and calculate power system measurements from PTs, CTs, and line post sensors, Callisto remotes collect the necessary data to make capacitor switching decisions. Utilizing DAQ's PILOT logic tool, custom switching algorithms can be created to meet specific utility requirements. Time, temperature, voltage, VARS, and PF can all be weighted to determine the best use of a switch control.

For high-end capacitor installations, where the elimination of switching transients is critical, DAQ has developed the Capacitor Bank Controller (CBC). Integrated into the Elara III remote, the CBC ensures zero voltage based switching, while providing all of the standard functionality of the Elara III. When a decision is made to activate capacitors, the CBC operates a single-phase vacuum switch that closes exactly at the zero crossing of the voltage, thereby eliminating system transients. In cases where the zero crossing might be missed, the module creates and stores a time delay based on previous operations and compensates for the next operation.

KEY FEATURES

- Advanced solutions for substation and distribution line applications
- Zero voltage crossing/transient-free switching
- Single or three-phase switching
- User-configurable algorithms
 - Time/temperature
 - Voltage/VAR
- Compatible with most solenoid/vacuum switches
- User-configurable automation applications, such as programmable logic, file archiving, and SOE recording
- Input/output capacity
 - 9 analog inputs (AC or DC)
 - 8 command relay outputs, configurable as 4 on/off pairs with select-before-operate protection
 - 16 status/alarm inputs
 - 4 communications ports
- Extensive protocol library for master station and IED communication
- AC powered with 8-hour battery back-up

MEASUREMENTS / COMMANDS

Inputs

- 16 digital inputs, individually configured to monitor status, alarm, or Form A/C accumulator inputs
- Opto-isolation: >1.5kV input to input and input to ground
- Surge withstand: 5kV ANSI/IEEE C37.90.1989 SWC using termination module

Outputs

- 8 command outputs, configurable as 4 on/off pairs with select-before-operate or 8 direct operate commands
- 2.2kV AC isolation: 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)

Analog Calculations

- Average and RMS volts and amps
- Neutral current
- Single and three phase watts, VARS, VA, PF
- Positive, negative, and zero sequence voltages
- 0 through 15th harmonic and THD for voltage and current
- Single and three phase watt hours, VAR hours, and VA hours

ADDITIONAL SPECIFICATIONS

Power

- 24VDC, 48VDC, 120VDC
- 110VAC

Isolation

- 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

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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 Bell 202 and CCITT V231200 baud 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
- Modem isolation: 2w/4w 500V transformer isolation with 300V gas tubes in primary

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

Interfaces

Pre-configured for compatibility with the listed vacuum switches and can easily be configured to interface with any other model

- Joslyn VBM
- Joslyn VersaVAC
- Cooper VCS

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 PCBs
- 7 7/8" x 10 3/8" (200mm x 265mm)

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



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