Model 6 Motor Control Centers with DeviceNet Communications

Square D® Model 6 Motor Control Centers featuring DeviceNet communications provide an effective method of connecting centralized control to widely distributed I/O. The DeviceNet cabling consists of a single multi-conductor cable that functions as a replacement for the bundles of hardwiring that typically interconnect the units in the motor control center (MCC). This configuration provides substantial savings associated with reduction in wiring and labor that more than justifies its integration in the MCC. Functionally, each MCC device connected to the DeviceNet system becomes a node on the network.

The Model 6 Motor Control Center can be connected directly to a DeviceNet network and supports:

- Altivar® 61 and 71 Variable Frequency Drives with DeviceNet Communications Card
- Full-Voltage Starter with TeSys® T Motor Management Controller with DeviceNet Communication
- Altistart® 48 Soft Starter with DeviceNet

DeviceNet Communications
DeviceNet is a device-level network that provides connections between simple industrial devices (sensors, actuators) and higher-level devices (controllers). DeviceNet supports trunkline-dropline configuration and up to 64 nodes, supporting data rates of 125kBD, 250kBD and 500kBD.

Product Benefits

- Remote Monitoring Capability – Monitor systems remotely, program and configure during run-time.
- Reduce Downtime – Diagnostics provide predictive failure warnings and troubleshooting.
- Reduction in System Interwiring – Network cable eliminates bundles of hard-wired I/O.
- Common Network – DeviceNet is a widely accepted network standard.
- Lower Installation Cost – Intelligent MCCs reduce the total installation cost by up to 20%.
- Ease of Configuration – Networking allows the removal, replacement and reconfiguration of MCC units without disrupting the running process.
DeviceNet Communication Cabling Solution

The Open DeviceNet Vendor Association (ODVA) rated cabling system used for connection of DeviceNet components in Model 6 Motor Control Centers provides complete integration of communication throughout the MCC. The Model 6 Motor Control Center offers options for Class 1 or Class 2 cabling, communication barrier and termination style. The Class 1 cabling solution is rated for use with power circuits up to and including 600V and features an 8A drop topology. The cabling solution utilizes a 5 pole microstyle tap for connections to the trunk for improved reliability.

Each trunk section consists of a 20" cable with ends terminating in male and female connectors, respectively. The trunk sections are located in the bottom horizontal wireway of each motor control center (MCC) section. Unused tee connectors are capped at the factory. A single tee junction resides at the bottom of every section, connecting the dropline to the trunk.

A 36" “pigtail” cable connects the tee in the drop cable to the DeviceNet component located in the MCC unit. One end of the pigtail cable terminates in a micro-style connector for connection to the drop cable tee and the other end terminates in bare wire or ferrules for connection to the DeviceNet device in the MCC unit.

Effective isolation between the network cabling and high voltage/current cabling in the MCC is accomplished by taking advantage of the industry-leading full-depth wireway of the Model 6 Motor Control Center. Additional isolation may be provided between the communication cabling and load cables routed in the vertical wireway by selecting an optional communication barrier.

When selected, this optional barrier prevents mechanical damage of the communication cable when routing load cables inside the MCC. The barrier allows access to the communication cabling for configuration changes without removal of the barrier. By distributing the trunk cabling in the horizontal wireway at the bottom of the Model 6 Motor Control Center, significant isolation from the horizontal bus at the top of the MCC is maintained.

Model 6 Motor Control Center with DeviceNet

The TeSys T controller integrated in the Model 6 Motor Control Center allows flexibility for various I/O choices. I/O choices include:

- Six discrete inputs
- Three relay outputs
- Ground CT input
- PTC input
- 24VDC or 120VAC, 50/60Hz
- Supports explicit messaging, poll, change of state and cyclic I/O messages
- Network status LED on front of unit
TeSys® T Motor Management Controller

The TeSys T Motor Management Controller can be directly connected to a DeviceNet network for data acquisition and control. With DeviceNet communication users gain access to motor data variables and system process control through “onboard” I/O. Functionality for over/under voltage, over/under current, ground fault and phase failure/unbalance protection is included. In addition, when combined with PLC interwiring, this module provides an independent data acquisition and control system.

**Standard Unit**
- Six discrete inputs and three relay outputs
- RJ45 port for connection to Expansion Module, HMI or PC
- Status indicating LEDs
  - HMI communication
  - Power
  - Alarm – Indicates warning or fault condition
  - Fallback – Indicates communication loss on active control source
  - PLC communication – Network status
- Fault relay – 1 N.O. and 1 N.C.
- Ground fault CT input
- PTC input

TeSys T controllers offer increased protection, control and monitoring capabilities

**TeSys T Expansion Module**
- Voltage monitoring
- Four additional logic inputs
- RJ45 port for connection to HMI or PC
- Status indicating LEDs
  - Power
  - Input status

**Human Machine Interface (HMI)**
- LCD display
- Status LEDs
- Local control functions
- Real time value display
- Parameter configuration
- Alarm monitoring
Altivar 61 and 71 AC Drives

The Altivar 61 and 71 AC Drive families connect to a DeviceNet network via the optional communication card. The communication card provides the means to control, configure and collect data over the DeviceNet network.

Altivar 61 and 71 AC Drives have an internally mounted communication card, which allows the drive to be integrated into the control or manufacturing process, without additional components or costs.

- Drives are accessible from a single point
- Monitor and change setpoints using DeviceNet
- Remote diagnostic

Altistart 48 Soft Start

The Altistart 48 Soft Start connects to a DeviceNet network via the optional communication module. The module, a serial communication adapter, provides the network pathway for the DeviceNet network. The integrated Altistart 48 Soft Start also offers benefits via a DeviceNet network, including:

- Control of starting torque and/or current limit
- Optimal ramp control during soft starting
- Choices between three modes of stopping: freewheel, deceleration or InTele Braking

Make the most of your energy™