

1 *Introduction*

1.1 The Micro-DCI product line:

The current Micro-DCI product line includes the following:

- 53MC5000 Process Control Station
- Optional I/O Modules
- Optional Communication modules
- Micro-Tools Software
- Micro-DCI Communication Services Software

1.1.1 53MC5000 Process Control Station:

This is a multi-loop controller and is the foundation of the MicroDCI product line. It can perform many process control functions from simple PID to complex control strategies. The controller is 72 x 144mm (3x6 inch type) format and has a high visibility CRT-type dot matrix display. The controller uses a modular design and expands easily. The standard controller has the following features:

Standard Features:

- 4 Analog inputs
- 2 Analog outputs
- 2 Discrete inputs
- 2 Discrete outputs
- 1 RS232 Configuration port
- 1 RS485 Micro-DCI DataLink communication port

Optional Features:

- Single or Multi-channel analog option
- 6DI/4DO or 16 DI/DO discrete option
- MicroLink high speed, peer-to-peer communication
- PLC/printer interface for communication with five standard PLCs and for connecting a printer

1.2 Configuration/Programming Methods:

The 53MC5000 Process Control Station can be programmed in 3 different ways:

1.2.1 FCS –Flexible Control Strategies:

FCS is a library of math, logic and process control function blocks or modules that can be soft-wired together to form complete control strategies. For most process control applications, the 53MC5000 Controller can be placed in service immediately without any programming using one of the pre-wired commonly used control strategies. The standard pre-wired FCS control strategies include:

1. One loop controller
2. Analog back-up controller
3. Ratio Controller
4. Auto/Manual Station
5. Ratio Auto/Manual Station
6. Two loop Controller
7. Two loop cascade
8. Two loop override
9. Dual two loop cascade
10. Four loop controller

The user can alter the selected Flexible Control Strategy to suit their specific control needs, or use the available function blocks to create a new strategy.

FCS can be configured from:

- Controller front face using the faceplate buttons
- Hand-held Configuration Terminal
- MicroTools Application Software

1.2.2 FCIM: Flexible Control Interconnection Modules

This method uses pre-defined control modules such as Math, Logic, Control and Input/Output modules in a user-defined sequence of steps to configure the control strategy. The user does not need any knowledge of computer programming.

FCIM can be configured from:

- Controller front face using the faceplate buttons
- MicroTools Application Software

1.2.3 F-TRAN: Flexible Translator Language

This is the third method of programming the 53MC5000. F-TRAN is a high level programming language that you can use to create custom control strategies that meet advanced application needs. The programs are written in simple command statements, compiled and downloaded into the controller. F-TRAN is used to create custom control programs but is also used to create custom controller displays.

Control F-TRAN: These programs are for implementing custom control strategies in the controller. Any complex control strategy can be implemented using the F-TRAN language command set. Complex sequence operations, batch controls, advanced calculations, etc. can all be included in and F-TRAN control program

Display F-TRAN: When the standard displays do not meet customer desires, custom displays can be created to provide the desired operator interface. Display F-TRAN allows pixel-by-pixel control of the dot matrix display. Standard symbols and text are provided along with an animation command set to create graphical displays and operator interfaces. F-TRAN, as a compiled language, requires a software development tool. MicroTools is the software product used to write, compile and load the F-RAN application.

1.3 Communication Options

The 53MC5000 can be accessed using several different communication methods. There are two standard communication ports provided; the Front Configuration Port and the DataLink communications port. MicroLink, an optional third communication port, can also be added.

Configuration Port: On the faceplate of the controller, an RS232 communication port is provided. This is commonly used to make a point-to-point connection between a PC and the controller.

DataLink Communication: On the rear of the controller, an RS485 multi-drop serial communication port is also provided. This port is commonly used to connect a series of controllers to a common PC. Operator Console or configuration software resident in the PC can be used to access controller information for data acquisition/control or re-configure/program the controller.

MicroLink Communication: An optional high-speed peer-to-peer communication network can be provided in the controller. The peer-to-peer communication network allows the controllers to pass information back and forth. This port is also commonly used to connect a series of controllers to a common PC. Operator Console or configuration software resident in the PC can be used to access controller information for data acquisition/control or re-configure/program the controller.