

Maxtek MDC-360C

Thin Film Averaging Controller



AUTOMATIC CONTROL OF SINGLE OR MULTI-LAYER FILM DEPOSITION

The Maxtek MDC-360C combines the best features of the MDC-360 and MDC-370 controllers. The most noticeable enhancement is the 4-color LCD display for parameter programming, displaying real-time graphs and other important run-time information. You can instantly switch between available graphs and status screens by pressing a key on the new keypad that provides a more comfortable and reliable user interface.

Programming the MDC-360C is easy with an intuitive menu structure, a built-in material library and an alpha numeric keypad. In a few short steps, the MDC-360C automatically creates the required control inputs and outputs for your multi-pocket sources, source shutters, single, dual and multi-crystal sensor heads. Simple English condition statements help you setup user-defined inputs, outputs and actions instead of numeric codes and confusing ladder logic. You can even name your inputs, outputs, processes and materials to make them more recognizable.

The MDC-360C can measure and average up to six crystals at one time to reduce measurement errors in large area deposition. Its high measurement resolution and fast update rate provide precise rate control down to 0.1 Ang/sec. It also has a Rate Establish function to obtain rate control before opening the source shutter as well as multiple rate ramps to handle the most critical processes.

The MDC-361C is a "black box" version of the MDC-360C designed for users who want to interface to the controller solely through a computer. Users can develop custom software or use our DCM software which provides an easy to use Windows® interface with on or offline programming, complete program and run-time data archiving and real-time graphing.

FEATURES AT A GLANCE

- Up to six sensor inputs with weighted averaging
- Automatic crystal switching, Time/Power, Halt or Abort upon crystal failure
- Compact 3-1/2 inch, full-rack case
- Audible attention, alert and alarm sounds with volume control
- Optional 27,000 run-time data storage points with time and date stamp
- Parameter storage for 99 processes, 999 layers and 32 materials
- Up to 16 programmable inputs and outputs
- Supports crystals from 2.5 to 10 MHz
- RS-232 interface, standard (RS-485 or IEEE-488 optional)
- Resume process from Abort or Power failure

SPECIFICATIONS

MEASUREMENT

| | |
|--------------------------|---|
| Frequency Resolution | 0.03 Hz @ 6.0 MHz |
| Mass Resolution | 0.375 ng/cm ² , (0.014 Å Al) |
| Thickness Accuracy | 0.5% +1 count |
| Measurement Update Rate | Dynamically adjusted, 0.5 to 10 Hz |
| Display Update Rate | 10 Hz |
| Sensor Crystal Frequency | 2.5,3,5,6,9, 10 MHz |

DISPLAY

| | |
|-------------------|-------------------------------|
| Thickness Display | Autoranging: -999 to 999.9 kÅ |
| Rate Display | Autoranging: -99 to 999 Å/sec |
| Power Display | 00.0 to 99.9% |
| Time Display | 0:00:00 to 9:59:59 (H:MM:SS) |
| Crystal Health | 00 to 99% |
| Layer Number | 001 to 999 |
| Graphics Display | 240 x 64 color LCD with CCFL |

COMMUNICATION

RS-232 serial port standard. RS-485 serial port optional.
IEEE-488 optional.

PROGRAMMING

All programming and system configuration is done through the LCD display. Programming is divided into three sections: Process, Material and System. Password protection is available at the Edit, View and Run levels. Defaults to no protection.

PROCESS PROGRAMMING

The MDC-360C can store up to 99 user defined processes. A process is a sequential list of defined layers. A layer is defined by two parameters, its material and its thickness. The MDC-360C can store up to 999 defined layers.

PROCESS PARAMETERS

| | |
|-------------------|--------------------------|
| Process Name | 12 character string |
| Edit Password | 4 character string |
| View/Run Password | 4 character string |
| Layer #1 to 999 | Material name, thickness |

MATERIAL PARAMETERS

The MDC-360C can store up to 32 user-defined materials. The MDC-360C also has a built in library of popular deposited materials.

SENSOR SETUP

Measurements from any combination of up to 6 sensors, 2 per Source/Sensor board, can be averaged. Each sensor can be configured to control a single, dual or multiple crystal heads (up to 16 crystals).

I/O CAPABILITY

Standard

| | |
|------------------------|--|
| Sensor Inputs | 2 Standard BNC |
| Source Outputs | 2 Fully Isolated, 2.5, 5 or 10 volts DC @ 20 mA, 0.02% resolution |
| Passive Inputs* | 8 fully programmable, ground true, 4.7 kohm pull up to 5 volts DC |
| Active Inputs* | 8 fully programmable, 10 to 130 VAC @ 50 to 60 Hz or 10 to 130 VDC |
| Relay Discrete Outputs | 8 fully programmable, SPST relay 120 VA, 2A max |
| Abort Relay Output | SPST relay, 120 VA, 2A max |
| Communication RS-232 | Rear Panel, 9 pin AT, full duplex Front Panel, RJ11-6POS jack, full duplex |
| Remote Power Handset | Front Panel, RJ11-4POS jack |

Option, Factory Installed

RS-485 serial communications port. Rear panel RS-232 can be replaced with RS-485.

Options, User Installed

Source/Sensor boards increase number of sources and sensors by two, to a maximum of six. Three boards maximum. Active or Passive I/O board increases number of inputs and outputs to sixteen. Two boards maximum. IEEE-488 communication card.

INPUT SETUP

Each individual input can be setup to initiate a specific action, under specific conditions, for a specific input state. Inputs associated with pocket or crystal position feedback are predefined.

OUTPUT SETUP

Each individual output can be setup to respond to a specific set of conditions. Outputs associated with pocket rotation or changing crystals are predefined.

DAC RECORDER SETUP

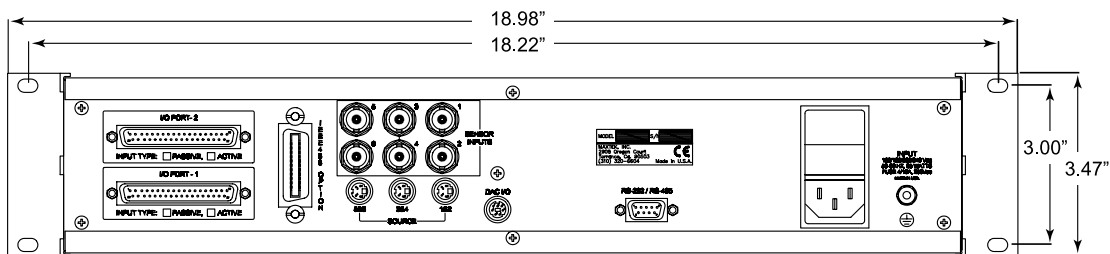
The MDC-360C has 2 analog, chart recorder outputs. The recorder outputs are configured with the following parameters:

Recorder Parameters

| | |
|-----------------------|--|
| Recorder #1/#2 output | Rate, Rate Deviation, Power or Thickness |
| Recorder #1/#2 scale | Full Scale %, 2/3 Digit |

Recorder Specifications

| | |
|------------|------------|
| Output | 0 to 5 VDC |
| Resolution | 0.02% |



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Due to our continuing program of product improvements, specifications are subject to change without notice.

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