

Series 500 Selectronic® Micro-Controller

MS5-9007B
Revised 06-06
Catalog Section 40
00-02-0094



- Microprocessor Based Automatic Controller
- Complete PLC Capabilities
- Field Programmable Set Points
- 24 Characters, Alphanumeric Display
- On-Board Tachometer and Throttling or Variable Speed Output
- Approved for Class I, Division 2, Groups C & D, Hazardous Areas



Description

The Series 500 Selectronic Micro-Controller is a microprocessor based logic control platform. It meets the combination of control and monitoring needs required in engine/electric motor driven equipment environments. The Series 500 controller is user friendly, multi-functional and easily adaptable to a wide variety of existing equipment.

Murphy controllers offer a less expensive and an integrated solution to control requirements not found in general purpose PLC's. These controllers include standard features not found or offered only as options on PLC's. Flexibility in application, programmability, as well as the small size and ease of use make these controllers highly desirable.

The programmable controller will adapt, through applications software, to a wide variety of sequential control and monitoring specifications. The Series 500 controller is programmed in EPROM memory, by Murphy engineers, to customer specifications. If the program logic needs to be altered, a new chip is ordered from Murphy, and simply "plugged" into the control board. While the sequence of operations within the program is secure from outside interference, the operating parameters are field-adjustable by the operator.

The set points are programmed using an on-board, 3- button key pad. A two line, 24 character, alphanumeric, Liquid Crystal Display

(LCD) provides operator access to the menu driven system variables. Up to 100 user adjustable set points are available for programming field parameters. These can include lead/lag and alternation schemes, and speed control. This feature gives the versatility to meet changing conditions without the risk of affecting the program logic. It also eliminates the need for programming skills or hand held instruments used on conventional PLC's.

The Series 500 controller has an expandable single board design which can be mounted in any enclosure approved for the area's electrical classification. These Controllers are "hardened" for operation in electrically hostile environments. They are expected to operate in the worst conditions, around spark ignition engines and in proximity to inductive loads. Special care has been taken to create a noise resistant controller that will resist damage or accidental change to the program.

The series 510 accessory board can be used to expand the features of the Series 500 controller. The 510 accessory board provides additional analog input/outputs.

The Series 500 controller is a full-featured, high-end, sophisticated controller. It is specifically designed for applications requiring many inputs and/or outputs and where more precise settings for set points and timing periods are required. This series can meet the needs of the most demanding operation.

Features

Micro-Controllers are state-of-the-art technology creating ease and convenience in monitoring and control automation.

The Series 500 controller features include:

- PLC Capabilities;
- Adjustable Operating Parameters without Re-programming
- Program Memory Held in EPROM
- Programmed by Murphy to Customers' Requirements
- Standard Programs Available
- On-board Tach Input and Throttling or Variable Speed Output
- Expandable
- Designed for Pump and Compressor Environments
- Adaptable to Engine or Electric Motor Prime Movers
- Real Time Clock
- On-Board Printer Port Standard
- Two Communication Ports
- Watch Dog Circuits

Warranty

A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to www.fwmurphy.com/support/warranty.htm



Specifications

Digital Inputs: 40 active low/high opto-isolated.

Digital Outputs: 32 open collector transistor;
40 VDC, 125 mA resistive.

Analog Inputs:

- Two (2) 8-bit 0-5 VDC or optional end-of-line 4-20 mA on-board selectable by jumpers.
- Two (2) 8-bit true 4-20 mA, 175 OHM input impedance.
- One (1) 8-bit monitor for external battery.

Analog Outputs: Two (2) 8-bit 4-20 mA.

Frequency Inputs: One (1) from magnetic sensor or other; 100-9000 Hz +/- 1 Hz; 1.2 to 30 Vrms; 1 Kohm input impedance.

User Set-Point Adjustments:

- One (1) 3-button on-board keypad.
- One (1) 2-line by 24 character Alphanumeric LCD display.

NOTE: The number of adjustable set points is determined by the program size.

Communications:

- One (1) RS-232 communications port.
- One (1) 2-wire (one twisted pair) RS-485 communications port.

Real Time Clock: Year/Month/Day/Day of the Week/ Hours/Minutes/Seconds. Lithium Battery Backup, independent of processor power supply.

Printer Port: One (1) parallel printer port; Generic Epson Protocol.

Power Supply Requirements: +5 VDC +/-3% 500 mA (with printer requires +5 VDC +/-10% 3 amp - no additional power required for external printer) and +15 VDC +/-3% 100 mA and -15 VDC +/-3% 100 mA.

NOTE: Additional external power supply required for 4-20 mA input signals.

Operating Temperature Range:
32-140° F (0-60° C).

Operating Humidity Range:
0-95%, non-condensing.

On-board Memory: 64 K EPROM, 8 K RAM.

Laboratory Approvals: UL and CUL approved for Class I, Division 2, Groups C & D Hazardous Locations.

Applications

The Series 500 controller can be widely applied to automatically control various processes of engines or electric motors. By utilizing up to two (2) fully independent PID control loops, the Series 500 controller can maintain any measurable variable (i.e. pressure) by either throttling an engine or varying the speed of an electric motor. This is done by controlling a variable frequency drive or by modulating a valve opening.

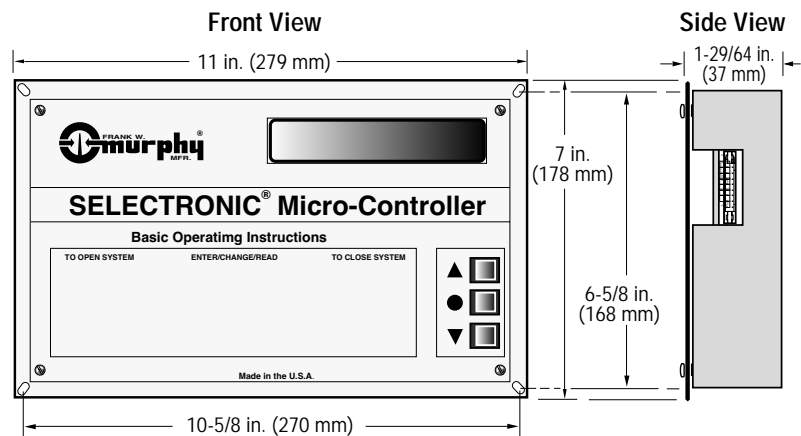
Typical applications for the Series 500 controller include:

- Fire Pump Applications
- Air or Gas Compressors
- Sewage Lift Stations
- Municipal Fresh/Waste Water Treatment and Transfer
- Booster and Transfer Pumps
- Burner Systems
- Car Washes
- Variable Speed Drives
- Plant or Process Automation
- Compressed Natural Gas Refueling Stations
- Water Injection for Waterflood and Disposal Purposes
- Filter POD Monitoring and Valve Switching

The Series 500 controller is not limited to these applications. It is designed to accommodate the most demanding automation needs. The Series 500 controller is applicable in situations requiring many inputs and/or outputs and where very precise set points and timing periods are required. It is especially useful when easy customer interface is desirable.



Dimensions



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