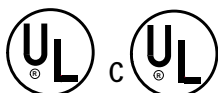
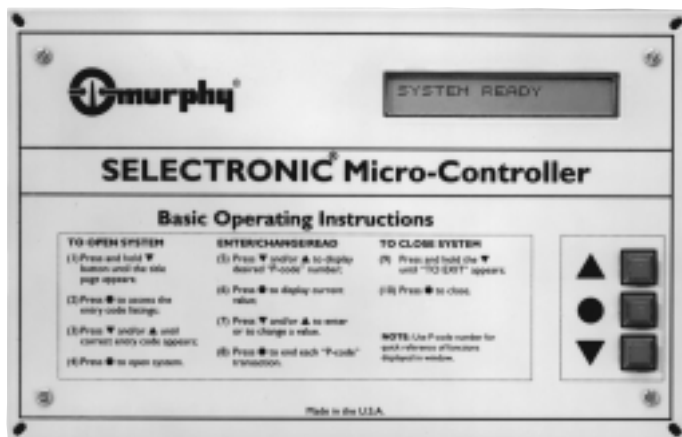


# SELECTRONIC® Micro-Controller™ Series 400



*Listings Pending for Class I, Division 2,  
Groups C & D areas.*

## Description

The **Series 400 SELECTRONIC® Micro-controller** is a **microprocessor based logic control platform**. This controller is a solid-state device. It can be programmed to meet the combination of control and monitoring needs required in engine/electric motor driven equipment environments. The Series 400 Micro-controller includes standard features not available or only offered as options on other PLC's.

The Series 400 is user friendly, multifunctional and easily adaptable to a wide variety of existing equipment. It 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**. The complete program sequence is within the **EPROM memory** and secure from outside interference.

The programmable micro-controller will adapt through application software to a wide variety of sequential control and monitoring specifications.

Murphy micro-controllers offer a **price competitive integrated solution** alternative to less functional general purpose PLC's.

**Flexibility in applications, programmability**, as well as the **small size** and **ease of use** make these controllers highly desirable.

- **Alphanumeric Liquid Crystal Display (LCD)**
- **Automatic Controller**
- **Microprocessor Based**
- **Set Points Are "Field Programmable"**
- **Compatible with New or Existing Murphy SWITCHGAGE® Monitoring Systems**



## Features

Murphy Micro-controllers offer state-of-the-art control technology creating a user friendly atmosphere in monitoring and control automation. The Series 400 features include:

- PLC Capabilities, plus . . . .
- Operating Parameters field adjustable without Re-programming
- Operating Program Memory Held in EPROM
- Programmed by Murphy to Customer Requirements
- On-board Tach Input and Throttling or Variable Speed Output
- Designed for Engine Control and Electric Motor Applications
- Real Time Clock
- RS-485 Communication Port
- Up to 100 User Adjustable Set Points for Programming Field Parameters
- Versatility to Meet Changing Conditions without the Risk of Affecting the Program Logic
- Hardened for Operation in Electrically Hostile Environments
- 2-Line, 24 character LCD display
- Single Board Design Can Be Mounted in Any Enclosure Approved for the Area Electrical Classification
- Watch Dog Circuit Continually Tests the Micro-controller Conditions for Any Failure. It Will Reset the Processor and Resume Normal Operation upon Detection of Circuit Fault.

## Specifications

### Digital Inputs:

Twenty-four (24) inputs are available for sensor inputs. Fourteen (14) of these inputs are active, low/high optically-isolated. The remaining ten (10) inputs are active, low optically isolated.

### Digital Outputs:

Twenty-four (24) open collector transistor outputs. One (1) of these can be use as watchdog output.

### Analog Inputs:

Four (4) Analog Inputs that are 8 bit external 0-5 VDC or optional end-of-line 4-20 mA. One of these inputs can also be configured as a 0-30.5 VDC monitor. In addition to the (4) external analog inputs, there is a dedicated internal analog input that self-monitors the voltage supplied to the controller.

### Frequency Input:

One (1) 100-9000 Hz input with amplitude of 1.2-30 Volts- RMS; signal may come either from the distributor tachometer output or from the magnetic pickup.

### User Set Point Adjustment:

One (1) onboard 3-button key pad with 2-line 24 character LCD display, allows visual interface to set parameters quickly and easily without affecting the program sequence.

### Communications:

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

### Real Time Clock:

Counts year, month, day, day of the week, hours, minutes; Lithium battery backup (independent of processor power supply).

### Power Supply Requirements:

Built in power supply operating on 12 or 24VDC, +7 to +30 VDC @ 1A.

### On-board Memory:

64K EPROM; used to store operating sequence;  
32K RAM; used for temporary storage for information data.

**Brand X Processor:** Execution speed 8 MHz.

**Operating Temperature Range:** 32-130 ° F (0-54° C).

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

## Applications

The Series 400 Micro-controller can be widely applied to automatically control various processes of engines or electric motors. **By utilizing up to four (4) analog inputs the Series 400 Micro-controller can maintain any measurable variable (i.e. pressure) by throttling an engine.** Typical applications include:

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

The Series 400 is not limited to these applications. It is designed to accommodate the most demanding automation needs. It is especially useful when easy customer interface is necessary and low cost is required.



The Series 400 Micro-controller can be mounted easily in panels and enclosures approved for the area electrical classification.

*In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time.*



■ **Frank W. Murphy Manufacturer**  
P.O. Box 470248; Tulsa, Oklahoma 74147; USA  
tel. (918) 627-3550 fax (918) 664-6146  
e-mail sales@fwmurphy.com

■ **Frank W. Murphy Southern Division**  
P.O. Box 1819; Rosenberg, Texas 77471; USA  
tel. (281) 342-0297 fax (281) 341-6006  
e-mail sales@fwmurphy.com

■ **Frank W. Murphy, Ltd.**  
Church Rd.; Laverstock, Salisbury SP1 1QZ; U.K.  
tel. +44 1722 410055 fax +44 1722 410088 tlx 477088  
e-mail sales@fwmurphy.co.uk

■ **Frank W. Murphy Pte., Ltd.**  
No. 2 Tuas South Street 2, Sprintecs Bldg., #02-01/02  
Singapore 638042  
tel. +65 863-1398 fax +65 863-0208  
e-mail fwmsales@fwmurphy.com.sg

■ **Murphuk Pty., Ltd.**  
1620 Hume Highway; Campbellfield, Vic 3061; Australia  
tel. +61 3 9358-5555 fax +61 3 9358-5558  
e-mail murphy@macquarrie.com.au

■ **Murphy de México, S.A. de C.V.**  
Blvd. Antonio Rocha Cordero 300, Fracción del Aguaje  
San Luis Potosí, S.L.P.; México 78384  
tel. +52-48-206264 fax +52-48-206336  
e-mail murmexsl@sanluis.podernet.com.mx

■ **Murphy Switch of California**  
P.O. Box 900788; Palmdale, California 93590; USA  
tel. (805) 272-4700 fax (805) 947-7570  
e-mail sales@murphyswitch.com

■ **Frank W. Murphy France**  
tel. +33 1 30 762626 fax +33 1 30 763989