

SELECTRONIC® Controller Scanner



1/8 DIN

Model CS2001

- Microprocessor based
- PID loop control for up to 32 loops
- Up to 4 alarms per channel (Class A, B, or C)
- Real time clock included
- Standard power supply will accept 12 VDC, 24 VDC, or 110/220 VAC power source
- Analog and digital inputs
- Analog and digital outputs

Description

The Murphy CS2001 controller scanner system is a compact, versatile, and extremely powerful process controller that offers a truly unique approach in design, features, and expandability. Each loop/input can be used for PID control with alarms or for simply monitoring from a variety of sensors.

When the requirements go beyond stand alone control, the Murphy CS2001 becomes the key element in a computer supervised system. For IBM® PC and compatible computers, Murphy offers MURSOFT™ CS, a comprehensive measurement and control software. MURSOFT™ CS features include graphic trending, process displays, alarm/data logging, data printout and data storage in text or Lotus compatible files. This menu driven package complements the power of the CS2001 creating an unmatched system for simplified distributed control and data acquisition.

Applications

- Air or Gas Compressors
- Burner Controls
- Environmental Control Systems
- Plant or Process Automation
- Data Logging
- Process/Data Trending
- Municipal Fresh/Waste Water Treatment and Transfer
- Control Monitoring of Level, Speed, Flow, Temperature, Pressure, Etc.

Features

Easy to Setup and Use: The prompting menu guide the operator or supervisor through setup, changes, or data access.

Displays Operating Conditions: A bright backlit LCD display provides two 16-character lines of alphanumeric information. Any alarm immediately switches the display to the affected loop/input with a flashing indication of the alarm type.

Mix Different Types of Sensors: Temperature, pressure, flow, speed, vibration—a variety of sensors can be inputted and their readings displayed in engineering units. For thermocouples and RTD's (RTD's with 16 and 32 input models only), connect any mix, select the type, and the CS2001 automatically provides reference junction compensation, linearization, and display in °F or °C.

Automatic Scaling: Linear sensors are automatically scaled by entering any two readings and the corresponding engineering units.

Alarms: Each loop/input can have up to 4 independent alarms. Each alarm can be set as Class A, B, or C. (Two process alarms, two shutdown alarms) Up to 64 custom messages can be entered.

Alarm History: An alarm history stack is maintained, in memory, for each loop/input. The value, type of alarm, and the date and time of the last four alarms are recorded. In the event of a shutdown from any loop/input, the measured value of each loop/input is stored in memory.

Selectable Operation Mode: Each loop/input can be independently set for P, PI, or PID control and/or displaying alarm and shutdown points.

Real Time Clock: The battery backed, real time

clock feature includes a running time hourmeter, five maintenance countdown hourmeters, and the time/date stamp on the alarm/shutdown history.

Maintenance Reminders: The user can program up to five maintenance reminders, in hours, with custom messages for each.

Universal Power Supply: Accepts a 12 VDC, 24 VDC, or 110/220 VAC power source and includes four output relays that can connect to any of the digital outputs for control or alarm/shutdown. A Class I, Division 2, Groups C & D rated power supply is available and includes sockets for two hermetically-sealed relays.

Choose Control Outputs: Menu select each of the 32 digital control outputs (24 on the 12 loop/input model) for on/off time proportioning or distributed zero crossing. Add external isolated output modules for analog control such as 4-20 mA. Optional relay output cards can be added for additional control or dry contacts for alarm or shutdown.

RS232 or RS485 Communication Port: The serial communication port expands the capability of the system by allowing the CS2001 to communicate with the Murphy SELECTRONIC® Micro-controllers or a computer running the MURSOFT™ CS software package (additional cost).

Digital Inputs: Using the optional digital input cards, up to 64 digital inputs can be added for additional alarms or shutdowns with custom messages.

Warranty

A one-year limited warranty on materials and workmanship is provided with this Murphy product. Details are available on request and are packed with each unit.

Specifications

Analog Inputs: 12 (common ground), 16, or 32 (differential).

• **Types:**

Thermocouple: J, K, T, B, R, or S with any mix, front panel selectable. Direct connection with linearization for °F or °C reference junction compensation, and upscale break indication.

NOTE: 12 loop/input models use ungrounded thermocouples only.

Recommend ungrounded thermocouples be used on all models.

Linear: 4-20 mA, -10 to 60 mVDC, or 0 to 25 VDC can be selected with scaling resistors. Independent scaling on each, with engineering units.

RTD: Three wire, versions; 100 ohm Platinum, 10 ohm Copper (3 maximum), or 120 ohm Nickel. Scaling resistors are required. RTD's are compatible with 16 and 32 loop/input models only.

• **Resolution:** 0.02%, greater than 12 bits.

• **Accuracy:** 0.1% FS, at 25°C (77°F).

• **Temperature COEF:** Less than 100 PPM per °C, 0.01% per °C.

Digital Inputs: 8 standard, up to 64 (with optional digital input cards). 5 VDC multiplexed. **NOTE:** Expansion of digital inputs using input cards limits digital outputs to 28.

Analog Outputs: Requires external module to convert distributed zero crossing output to 4-20 mA (Murphy 35050187 analog output module).

Digital Outputs: 36 total outputs. Two of the 36 are dedicated for System OK, all alarms. All continuous 10 mA sink reference to +5 VDC. **NOTE:** Digital outputs are limited to 28 when using optional input cards.

Communication Port: RS485 four wire standard, RS232 special order.

- **Baud rate:** 2400 or 9600, menu selectable.
- **Error check:** BCC or CRC, menu selectable

Power Supply: 12 or 24 VDC, 110±10%, 220±10% VAC 50/60 HZ, 30 watt maximum, 10 watts nominal. The general purpose power supply comes with four relays for alarm/shutdown or control. The Class I, Division 2, Groups C and D power supply has sockets for 2 hermetically sealed relays. Relay Contact Rating: 5A 30 VDC, 5A 125, 250 VAC, 1/6 HP 150 watts max.

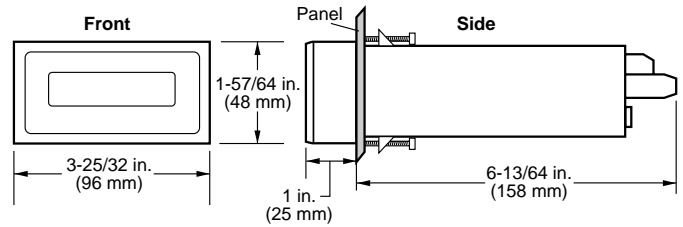
Environmental:

- **Storage Temperature:** -20 to 70°C
- **Operating Temperature:** 0 to 50°C
- **Humidity Conditions:** 10 to 95% non-condensing

System Speed: Each loop/input fully updated each second (12 or 16 loop/input models, two seconds for the 32 loop/input model).

Display Modes: Single loop/input displayed only. Scanning each loop/input in sequence with unused loop/inputs skipped.

Dimensions

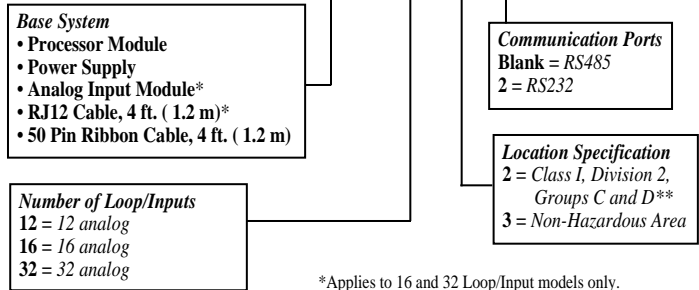


Mounting Hole: 1.795 in. ± .020 in. x 3.622 in. ± .020 in.
(46 mm ± .51 mm x 92 mm ± .51 mm)

How to Order

Specify model number when ordering. See example below.

Example model number: CS2001 - 12 - 3 -



*Applies to 16 and 32 Loop/Input models only.
**Hazardous area classification pending.

Accessories

Specify

- 35050187 Digital analog converter, dual output 4-20 mA. (requires 24 VDC)
- 35050188 Digital input card, 32 discrete inputs (requires 35050191)
- 35050189 Auxiliary relay card, four form "C" relays (requires 35050191)
- 35000025 MURSOFT™ CS, control and data acquisition software package
- 35050191 50 Pin flat ribbon cable, 4 ft. (1.2 m)
- 35050199 RJ12 cable, 4 ft. (1.2 m)
- 35050202 CS2001-16 and 32 RS232 computer cable, 10 ft. (3 m)
- 35050213 CS2001-16 and 32 RS485 computer cable, 10 ft. (3 m)
- 35050214 CS2001-12 RS232 computer cable, 10 ft. (3 m)
- 35050215 CS2001-12 RS485 computer cable, 10 ft. (3 m)
- 00003631 Remote digital I/O terminal block

Service Parts

- 35050190 Power supply, 12/24 VDC or 110/220 VAC, 50/60 Hz
- 35050193 Process display unit, 12 loop/Input, RS232
- 35050194 Process display unit, 12 loop/Input, RS485
- 35050195 Process display unit, multi-loop, RS232
- 35050196 Process display unit, multi-loop, RS485
- 35050197 Analog 16 input module
- 35050198 Analog 32 Input module
- 35050201 Output/input ribbon cable
- 35050222 Auxiliary relay card for two hermetically sealed relays†
- 35050223 Power supply, 12/24 VDC or 110/220 VAC, 50/60 Hz, Class I, Division 2, Groups C and D†

† Does not include relays. If required, order as separately. Part number 00003348.

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

- **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.**
26 Siglap Drive; Republic of Singapore 456153
tel. +65 241-3166 fax +65 241-8382
e-mail fwmsales@fwmurphy.com.sg
- **Murphok Pty., Ltd.**
1620 Hume Highway; Campbellfield, Vic 3061; Australia
tel. +61 3 9358-5555 fax +61 3 9358-5558

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