# OptiMate Panels Overview



**OP-400 Series**



**OP-600 Series**



**OP-1000 Series**

## Overview

Our OptiMate line offers another option for operator interface users. The units offer many features at a low cost.

You can connect the panels to your application by using the configuration software and ladder logic in your program.

## Compatibility

OP-400 series, OP-600 series and OP-1000 series panels all work with DL05, DL06, DL105, DL205, DL305, DL405, Allen-Bradley SLC 5/03, 5/04, 5/05 and MicroLogix 1000/1200/1500 PLCs.

OP-1000 series panels and the OP-9001 also work with GE Fanuc Series 90 Micro, GE 90/30 Series (SNP) and Modbus RTU PLCs.

All panels require setup using our OP-WINEDIT configuration software. Simply choose the proper cable and particular type of CPU in our configuration software.

A single OP-400 series panel can be used with one CPU port, while single or multiple (up to 31 panels using an OP-9001 communications panel) OP-600 and OP-1000 series panels can be used with one CPU port.

### Choosing the right panel

The following pages show a quick summary of our operator interface panels and the key features associated with them. Here are a few helpful hints to consider as you're reviewing the features:

**Do you need just a simple message display?** If so, look at the OP-420, OP-440, OP-620 or OP-640.

**Do you need pushbuttons or panel lamps without message capability?** Then look at the OP-406, OP-609, OP-613, OP-1124(-1), OP-1224 or OP-1212.
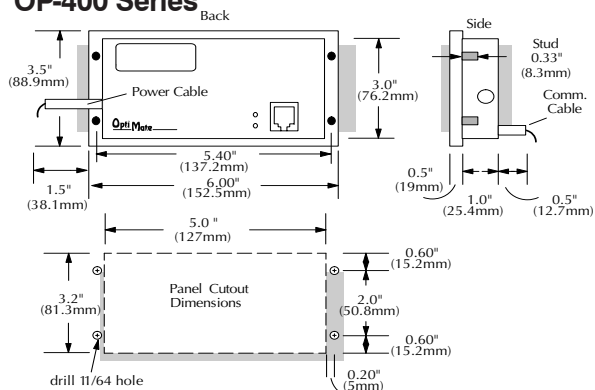
**Do you need a simple setpoint panel?** If so, check out the OP-413, OP-414, OP-613, or OP-1312.

**Do you need programmable function keys and a display?** Then look at the OP-420, OP-620, OP-640, OP-1500 or OP-1510.
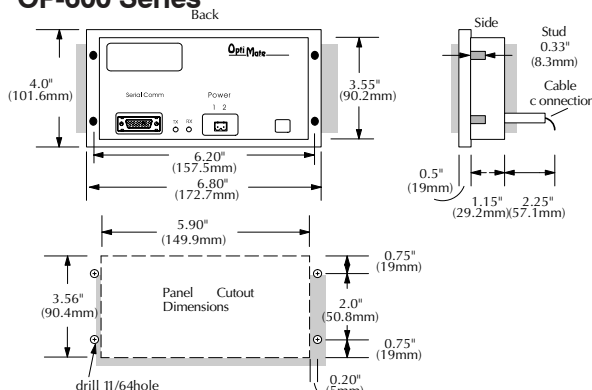
# OptiMate Panels Specifications

| Optimate Panel Specifications | | | | |
|---|---|---|---|---|
| **Specifications** | **OP-400 Series** | **OP600 Series** | **OP-1000 Series** | **OP-9001** |
| **Units per CPU** | One per port | 1 or multiple (up to 31 with OP-9001) | 1 or multiple (up to 31 with OP-9001) | One per port |
| **Service Power (Input)** | 5VDC | 8-30VDC | | 8-30VDC |
| **Power Consumption** | OP-406  0.25W @ 5VDC<br>OP-413  0.80W @ 5VDC<br>OP-414  0.85W @ 5VDC<br>OP-420  0.58W @ 5VDC<br>OP-440  0.75W @ 5VDC | OP-609  2.4W @ 83-30VDC<br>OP-613  2.2W @ 8-30VDC | OP-1124  10W @ 8-30VDC<br>OP-1212  7W @ 8-30VDC<br>OP-1224  4W @ 8-30VDC | 2W @ 8-30VDC |
| **In-Rush Current** | .35A-.44A for 1ms | 1.5-2.0A for 2ms max. | | n/a |
| **Serial Communication** | PLC port  RS-232 RJ12 | PLC Port RS-232/422  15 pin D-sub (female) | | One-RS-232/422 to PLC<br>Two-RS-422 to OP panels<br>(3 DB15 female) |
| **Max. Cable Length** | RS-232: 50ft | RS-232:  50ft.   RS-422/OP-9001: 4000ft | | 4000ft. shielded cable<br>30ft. ribbon cable |
| **Configuration Software** | OP-WINEDIT | | | |
| **Environmental Specifications** | | | | |
| **Enclosure** | NEMA 4 | | | |
| **Agency Approval** | UL,CUL,CE | | | |
| **Operating Temperature** | 32 to 122°F  (0 to 50°C) | | | |
| **Storage Temperature** | -4 to 158°F (-20 to 70°C) | | | |
| **Humidity** | 10-95% R.H. (non-condensing) | | | |

## OP-400 Series



## OP-600 Series



## OP-1000 Series



## OP-9001

Automation Direct

PLC Overview
DL05/06 PLC
DL105 PLC
DL205 PLC
DL305 PLC
DL405 PLC
Field I/O
Software
C-more HMIs
Other HMI
AC Drives
Motors
Steppers/ Servos
Motor Controls
Proximity Sensors
Photo Sensors
Limit Switches
Encoders
Pushbuttons/ Lights
Process
Relays/ Timers
Comm.
TB's & Wiring
Power
Enclosures
Appendix
Part Index
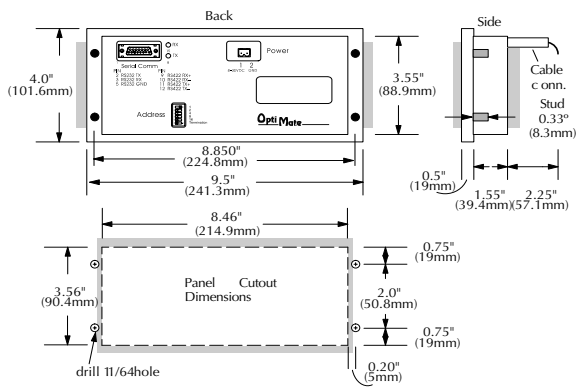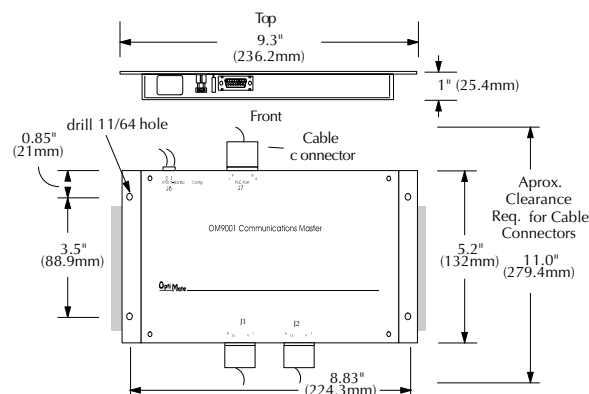
# OptiMate 400/600 Series

## OP-406   <--->

### Indicator/pushbutton panel

- Four User-defined function keys with LED indicators
- Six LED annunciator lamps

## OP-413   <--->

### Setpoint/display panel

- Read/write six PLC data registers with a bank of data locations
- Four-digit numeric display
- Make setpoint adjustments by using select button and arrows to change values

## OP-414   <--->

### Setpoint/display panel

- Read/write six PLC data registers with a bank of data locations
- Eight-digit numeric display, allows BCD double operations
- Make setpoint adjustments by using select button and arrows to change values

## OP-420   <--->

### Operator panel

- 2x20 character LCD display
- Four function keys with LEDs
- Display up to 160 pre-defined messages which reside in the panel's memory

## OP-440   <--->

### 4-line display panel

- 4x20 character LCD display with the ability to display text, BCD double, binary and floating-point numbers
- Display up to 160 predefined messages which reside in the panel's memory

## OP-PS400   <--->

### Power Supply

- External 5 VDC power supply for OP-400 series panels
- Plugs into standard 120 VAC receptacle

## OP-609   <--->

### Combination panel

- Nine user-defined function keys with LED indicators
- Six LED annunciator lamps

## OP-613   <--->

### Setpoint/display panel

- Read/write 4 PLC data registers with a bank of data locations
- Four-digit numeric display
- Make setpoint adjustments by using select button and arrows to change values
- Four user-defined function keys with LED indicators
- Two LED annunciator lamps

## OP-620   <--->

### Operator panel

- 2x20 character LCD display
- Five function keys with LED indicators
- Five control keys with menu tree capability
- Display up to 160 pre-defined messages which reside in panel's memory

## OP-640   <--->

### 4-Line display panel

- 4x20 character LCD display with the ability to display text, BCD double, binary and floating point numbers
- Five function keys
- Three LED annunciator lamps
- Display up to 160 predefined messages, which reside in panel memory

*Note: OP-PS400 is required for panel configuration and operation of all OP-400 series panels. Do not power from PLC communications port.*
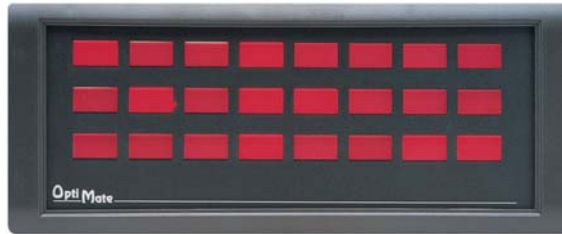
# OptiMate 1000 Series

## OP-1124      <--->
### Annunciator panel

- 24 high-intensity LED annunciator lamps
- Interchangeable colors (red, green, yellow)
- Create custom labels
- OP-1124-1 for <---> comes with one row each of red, yellow and green light bars already installed

## OP-1224      <--->
### Pushbutton panel

- 24 individual pushbuttons with LED indicators
- Create custom labels

## OP-1212      <--->
### Combination panel

- 12 high-intensity LED annunciator lamps
- Interchangeable colors (red, green, yellow)
- 12 pushbuttons with LED indicators
- Create custom labels

## OP-1312      <--->
### Setpoint/display panel

- Read/Write 12 PLC data registers with 3 banks of four data locations, each with a 4-digit display
- Create custom labels
- Three control keys for each bank of data locations
- Make setpoint changes using the arrow control keys

## OP-1500/OP-1510      <--->
### Operator panel

- 2x20 character LCD display
- Full numeric keypad
- Five function keys with LED status
- Three LED annunciator lamps
- Build and store up to 160 messages in the unit
- Menu capability (OP-1510)

# OptiMate Accessories
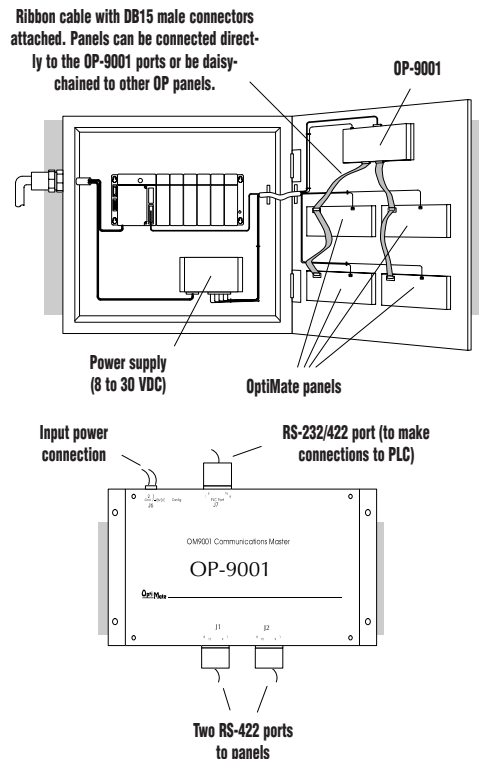
## OP-9001            <--->

### Communications master

The OP-9001 is a communication master unit for connecting two or more (up to 31) OP-600 and OP-1000 series OptiMate panels to a single CPU communications port. It connects to any *Direct*LOGIC, Allen-Bradley 5/03, 5/04, GE Series 90/30, GE Series 90 Micro, and Modicon (Modbus RTU) CPU.

*Note: The OP-9001 cannot be used with OP400 series panels.*

The adjacent figure is a typical multi-drop arrangement using an OP-9001 connected to four OptiMate Panels. The OP-9001 is surface-mounted to the cabinet. Notice the adequate space available to route cables and allow for proper clearance. All the panels are configured using OP-WINEDIT software.



Ribbon cable with DB15 male connectors attached. Panels can be connected directly to the OP-9001 ports or be daisy-chained to other OP panels.

OP-9001

Power supply (8 to 30 VDC)

OptiMate panels

Input power connection

RS-232/422 port (to make connections to PLC)

OM9001 Communications Master

OP-9001

OptiMate

Two RS-422 ports to panels

## OP-WINEDIT        <--->

### Configuration software

All of the OptiMate panels (including the OP-9001 communication master) are configured using the OptiMate OP-WINEDIT configuration software.

OP-WINEDIT software is compatible with computers running Windows 95/98/2000/NT/XP.

Simply load the software onto your personal computer. The simple setup instructions are described in the supplied manual and in the built-in HELP screens. The software allows setup of your complete panel applications, including the type of PLC being used, communications protocol, type of panel (or panels) being used, and in some cases, the format of the message text for the LCD display. Some panels even include the ability to design a menu tree. The setup steps are similar for all OptiMate panels. Use cable OP-CCBL to connect a PC to OP-400 series panels, or OP-ACBL-1 to connect to OP-600 or OP-1000.

*Note: When using the OptiMate 600 series panels (except for the OP-640), OP-WINEDIT software version 2.0 or later is required. When using the OptiMate 400 series panels or the OP-640, version 2.3 or later is required.*
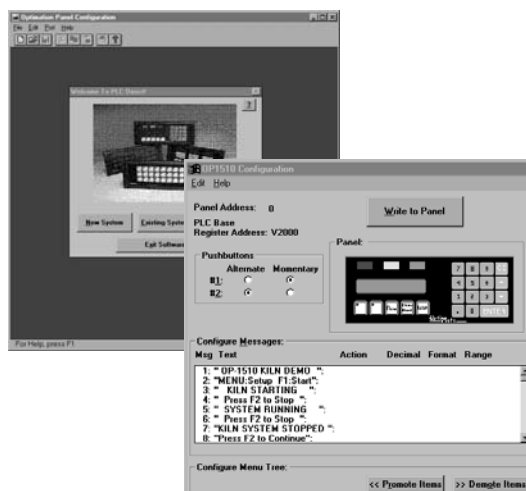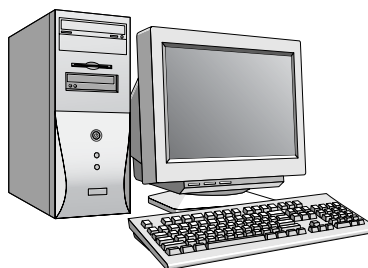
# OptiMate Cables

| Cables for OptiMate Panel-to-PLC Conn | | | | |
|---|---|---|---|---|
| **Family** | **CPU (or other device)** | **Port** | **Cables for 600/1000 Series** | **Cables for 400 Series** |
| *DirectLOGIC™ DL05* | DL05: D0-05 | Port 1 | OP-2CBL | OP-2CBL-2 |
| | | Port 2 | OP-2CBL | OP-2CBL-2 |
| *DirectLOGIC™ DL06* | DL06: D0-06 | Port 1 | OP-2CBL | OP-2CBL-2 |
| | | Port 2 | OP-2CBL-1 | not available*** |
| *DirectLOGIC™ DL105* | DL105: F1-130 | Only one | OP-2CBL | OP-2CBL-2 |
| *DirectLOGIC™ DL205* | D2-230 | Only one | OP-2CBL | OP-2CBL-2 |
| | D2-240 | Top port | OP-2CBL | OP-2CBL-2 |
| | | Bottom port | OP-2CBL | OP-2CBL-2 |
| | D2-250-1 D2-260 | Top port | OP-2CBL | OP-2CBL-2 |
| | | Bottom port | OP-2CBL-1 | not available*** |
| | D2-DCM (module) | Only one | OP-4CBL-2 | not available*** |
| *DirectLOGIC™ DL305* | D3-330 | Requires DCU* | OP-4CBL-2 | not available*** |
| | D3-330P | Requires DCU* | OP-4CBL-2 | not available*** |
| | D3-340 | Top port | OP-3CBL | OP-3CBL-1 |
| | | Bottom port | OP-3CBL | OP-3CBL-1 |
| | D3-350 | Top port | OP-2CBL | OP-2CBL-2 |
| | | Bottom port | OP-4CBL-2 | not available*** |
| *DirectLOGIC™ DL405* | D4-430 | Top port (15-pin) | OP-4CBL-1 | OP-4CBL-3 |
| | | Bottom port (25-pin ) | OP-4CBL-2 | not available*** |
| | D4-440 | Top port | OP-4CBL-1 | OP-4CBL-3 |
| | | Bottom port | OP-4CBL-2 | not available*** |
| | D4-450 | Phone jack | OP-2CBL | OP-2CBL-2 |
| | | Top port (15-pin) | OP-4CBL-1 | OP-4CBL-3 |
| | | Bottom port (25-pin) | OP-4CBL-2 | not available*** |
| | D4-DCM (module) | Only one | OP-4CBL-2 | not available*** |
| | Slice I/O panels | Only one | OP-4CBL-1 | OP-4CBL-3 |
| *GE® Series 1* | IC610CPU105, 106 | Requires DCU* | OP-4CBL-2 | not available*** |
| *GE® Series 90/30* | All models (311-351) | RS422 serial port | not available*** | not applicable |
| *GE® Fanuc™ Series 90 Micro* | All models | RS422 Serial port | not available*** | not applicable |
| *MODICON* | ModBus | RJ45 port | OP-MCBL-1** | not applicable |
| *TI305™/ SIMATIC® TI305™* | 325-07, PPX:325-07 | Requires DCU* | OP-4CBL-2 | not available*** |
| | 330-37, PPX:330-37 | Requires DCU* | OP-4CBL-2 | not available*** |
| | 325S-07 (or 325 w/Stage Kit) | Requires DCU* | OP-4CBL-2 | not available*** |
| | 330S-37, PPX:330S-37 | Requires DCU* | OP-4CBL-2 | not available*** |
| | 335-37, PPX:335-37 | Only one | OP-3CBL | OP-3CBL-1 |
| | | If DCU is used* | OP-4CBL-2 | not available*** |
| *TI405™/ SIMATIC® TI405™* | 425-CPU, PPX:425-CPU | Only one | OP-4CBL-1 | OP-4CBL-3 |
| | 430-CPU, PPX:430-CPU | Top port (15-pin) | OP-4CBL-1 | OP-4CBL-3 |
| | | Bottom port (25-pin) | OP-4CBL-2 | not available*** |
| | 435-CPU, PPX:435-CPU | Top port (15-pin) | OP-4CBL-1 | OP-4CBL-3 |
| | | Bottom port (25-pin) | OP-4CBL-2 | not available*** |
| | Smart Slice™ I/O panels | Only one | OP-4CBL-1 | OP-4CBL-3 |
| *Allen-Bradley™ SLC 500* | 5/03 5/04 | Bottom port | OP-ACBL-1 | OP-ACBL-3 |
| *Allen-Bradley™* | MicroLogix 1000/1200/1500 | Only one | OP-ACBL-2 | OP-ACBL-4 |

\* Requires RS-232 Data Communications Unit (D3-232-DCU)     \*\* 1000 series panels only     \*\*\* Cables for connecting to these ports must be built by the user. Pinout diagrams are in the OptiMate panel user manual or online.

PLC Overview

DL05/06 PLC

DL105 PLC

DL205 PLC

DL305 PLC

DL405 PLC

Field I/O

Software

C-more HMIs

Other HMI

AC Drives

Motors

Steppers/ Servos

Motor Controls

Proximity Sensors

Photo Sensors

Limit Switches

Encoders

Pushbuttons/ Lights

Process

Relays/ Timers

Comm.

TB's & Wiring

Power

Enclosures

Appendix

Part Index