

# ML1000-4X Panel MurphyLink® Series

The MurphyLink Series ML1000-4X Panel, engineered and built by Enovation Controls' Industrial Panel Division, is a superior panel offering which includes the powerful, yet simple-to-configure MPC-10 Controller. The MPC-10 is a general, all-purpose manual/auto start and manual/auto throttling engine controller designed with rental applications in mind. The controller is purposed primarily for applications where a wide array of inputs and outputs are not required. The MPC-10 supports J1939 CAN protocols for electronically governed engines as well as analog sensors on mechanical engines for fault and safety shutdowns.

The MPC-10 follows a standard operating sequence of 22 machine states that happen in a predetermined order. Machine states can be set to zero if not needed or adjusted to fit the application. The menu structure is incredibly versatile, with the ability to change many parameters and settings from the face without the need of a PC tool, if desired.

The flexibility of the MPC-10 controller allows for the same control panel to be used across many applications. This provides the operator familiarity with the controller and control panel in any application.

## Specifications

### MPC-10 Controller

**Operating Voltage:** 8-32VDC, reverse polarity and load dump protected

**Operating Temperature:** -40° to +85°C (-40° to 185°F)

**Storage Temperature:** -40° to +85°C (-40° to 185°F)

**Total Current Consumption:**

**Power on in stopped state;** 117 mA at 12 VDC. **Power on in standby mode;** 52 mA at 12 VDC.

**Enclosure:** Polycarbonate NEMA 4X

**Mating Connectors:**

21 Position, Deutsch HDP26-24-21SE,

31 Position, Deutsch HDP26-24-31SE

**Communications:**

(1) CAN J1939

(1) RS485, Modbus RTU

(1) USB 2.0BforProgramming

How to Order



The Control Panel utilizes industry-standard Deutsch connectors and is compatible for use on the simplest mechanical engine to the most advanced, fully electronic Tier 4 engines, when used with the correct Murphy Industrial Harness<sup>1</sup> (MIH) or John Deere OEM engine harnessing.

A free-of-charge PC Configuration tool is available to allow customers to change default settings and provide three levels of passcode protection.

The ML1000-4X panel can be mounted directly to the engine or engine/application cover. The enclosure has a clear door for protection from foreign debris contacting the face of the controller when desired.

<sup>1</sup>Please contact Industrial Panel Sales for application specifics and MIH harnessing.

### Outputs (8):

(3) Relays: 10A, SPDT, Form C (30 VDC @ 10A max.), 30A max aggregate @ 85C

(2) Low-side (1A)

(2) High-side (1A)

(1) Dedicated Alternator Excite (provides Charge Fail Fault if unable to excite alternator)

### Inputs (9):

(5) Digital, configurable (high/low)

(3) Analog, configurable (4-20mA, 0-5V, resistive)

(1) Frequency, supporting Magnetic pickup (30Hz - 10kHz, 2.0VAC-120VAC) and Engine Alternator (30Hz - 10kHz, 4.5 VRMS - 90 VRMS)

**Languages:** English, Spanish, German, French, Italian

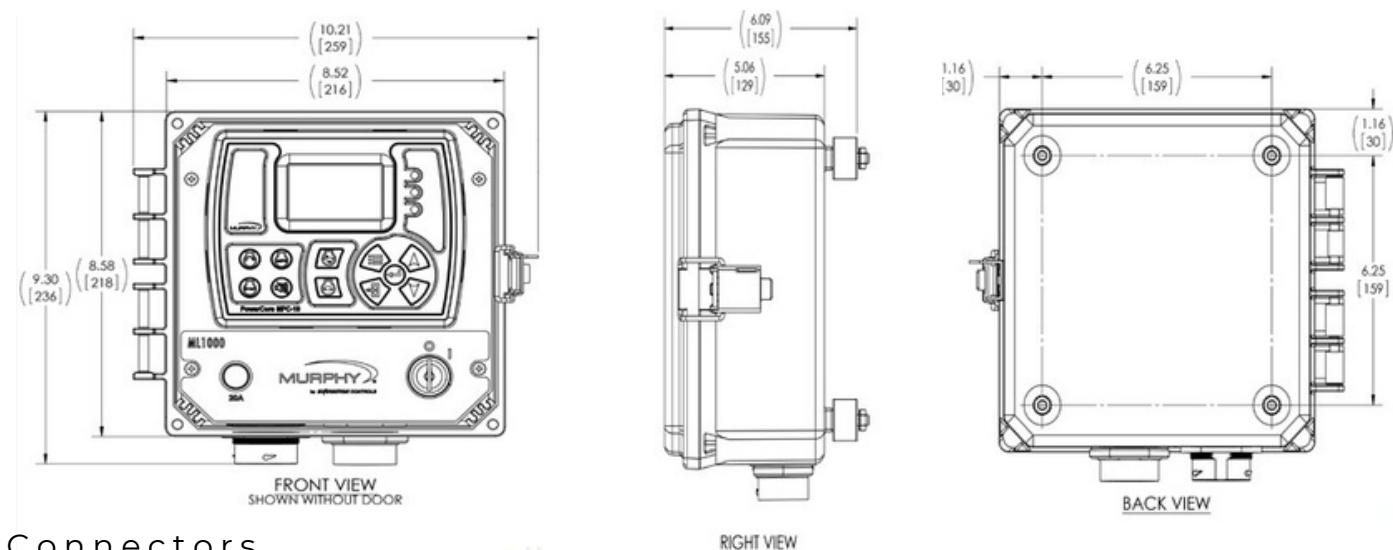
**Dimensions:** 10.21 x 9.30 x 6.09 in. (259 x 236 x 155mm)

(WxHxD)

| Part Number | Model and Description                                               | Notes |
|-------------|---------------------------------------------------------------------|-------|
| 40700503    | ML1000-4X, Polycarbonate, NEMA 4X Control Panel                     |       |
| 40000602    | Engine Harness, 21 Position Connector 10' Whip Harness (3m approx.) |       |
| 40000603    | I/O Harness, 31 Position Connector 10' Whip Harness (3m approx.)    |       |
| 40000479    | Deutsch Connector Kit, 21-pin & 31-pin, Panel Connector Kit         |       |
| 40000531    | Deutsch Connector kit, 21-pin, Panel Connector Kit, Engine Only     |       |
| 78700046    | Deutsch Connector kit, 31-pin, Panel Connector Kit, I/O Only        |       |
| 78000668    | USB Programming Harness                                             |       |

# Product and Mounting Dimensions

## ML1000-4x



### Connectors

| Deutsch 21 pin Connector Engine |                    | Deutsch 31 pin Connector I/O |                                 |
|---------------------------------|--------------------|------------------------------|---------------------------------|
| PIN                             | Function           | PIN                          | Function                        |
| A                               |                    | 1                            | Ignition Signal                 |
| B                               | Battery +          | 2                            |                                 |
| C                               |                    | 3                            |                                 |
| D                               | Starter Solenoid   | 4                            |                                 |
| E                               | Battery -          | 5                            |                                 |
| F                               |                    | 6                            |                                 |
| G                               | Fuel/ECU           | 7                            |                                 |
| H                               |                    | 8                            |                                 |
| J                               | Alternator Excite  | 9                            | Analog Input 3                  |
| K                               |                    | 10                           |                                 |
| L                               |                    | 11                           |                                 |
| M                               |                    | 12                           |                                 |
| N                               |                    | 13                           |                                 |
| P                               |                    | 14                           | Not in Auto                     |
| R                               | Throttle Decrement | 15                           | Float Stop (Digital Input 3)    |
| S                               | Throttle Increase  | 16                           |                                 |
| T                               | Frequency Input    | 17                           |                                 |
| U                               | J1939 CAN LO       | 18                           | Relay 3 (Common)                |
| V                               | J1939 CAN HI       | 19                           | Relay 3 (NC) Relay 3            |
| W                               | Temperature Sender | 20                           | (NO) Oil Level (Digital         |
| X                               | Pressure Sender    | 21                           | Input 5) Digital Input 1        |
|                                 |                    | 22                           |                                 |
|                                 |                    | 23                           |                                 |
|                                 |                    | 24                           | Float Start (Digital Input 2)   |
|                                 |                    | 25                           | Engine Running Signal           |
|                                 |                    | 26                           |                                 |
|                                 |                    | 27                           | Aux battery negative            |
|                                 |                    | 28                           |                                 |
|                                 |                    | 29                           |                                 |
|                                 |                    | 30                           | Coolant Level (Digital Input 4) |
|                                 |                    | 31                           | RS485+                          |
|                                 |                    |                              | RS485-                          |

### SALES CONTACT