

# PowerCore<sup>®</sup> MPC-10

The Murphy PowerCore MPC-10 Controller 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. This is a powerful and rugged controller that supports J1939 CAN protocols for electronically governed engines as well as analog sensors on mechanical engines for fault and safety shutdowns.

While reprogrammable, the MPC-10 follows a standard operating sequence. This operating sequence is a set 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 MPC-10 is flexible in many aspects, with the ability to:

- use the same controller on 12VDC or 24VDC systems;
- assign multiple levels of passcode protection to the menu using the free of charge PC Configuration Tool;
- change the input sensor type for the analog inputs;
- use analog inputs as digital ground inputs;
- be mounted in all weather environments;
- be customer mounted in panel of choice.

## Specifications

### Interface:

- Display:  
Monochrome HR-TFT, 2.7 in. / 68mm, WQVGA (400 x 240 pixels)  
(3) LEDs: green (mode), yellow (warning) and red (shutdown)
- Operator Controls:  
(11) Raised silicon keypads, tactile feedback

### Power Supply:

- Operating Voltage: 8-32 VDC, reverse battery polarity and load-dump protected  
Cranking Power Holdup: 0 VDC up to 50mS (also good for brownout / blackout instances)  
Power Consumption:  
18W max without two 1A High-side FETs active  
146W max with two 1A High-side FETs active

### Inputs:

- (5) Digital, configurable (active on High, Low, Open)  
(3) Analog, configurable (4-20mA, 0-5V, resistive or digital ground)  
(1) Frequency, supporting:  
Magnetic Pickup (30 Hz - 10 kHz, 2.0 VAC - 120 VAC) and  
Engine Alternator (30Hz - 10 kHz, 4.5 VRMS - 90 VRMS)

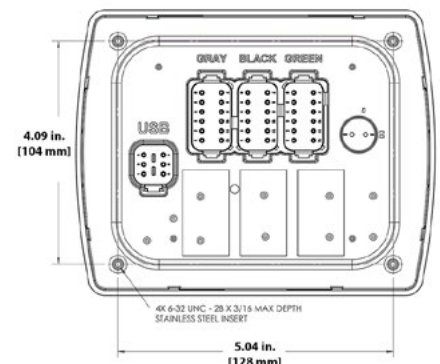
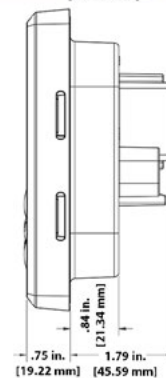
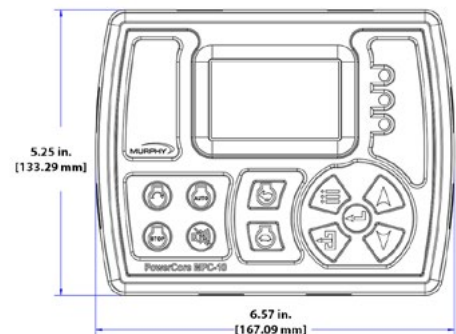
### Outputs:

- (3) Relay, Form C (dry / volt-free), 10A  
(2) Low-side FET (-DC), 1A  
(2) High-side FET (+DC), 1A  
(1) Dedicated Alternator Excitation, +DC, 1A



\*Approved by CSA for non-hazardous locations (Group Safety Publication IEC 61010-1 Third Edition.  
Products covered in this document comply with European Council electromagnetic compatibility directive 2014/30/EU and electrical safety directive 2014/35/EU.

## Dimensions



## Specifications (continued)

### Physical / Environmental:

Enclosure Material: Polycarbonate / ABS  
 Dimensions (WxHxD):  
 9.59 x 7.34 x 5.20in. (243.48 x 186.5 x 132.23 mm)  
 Weight: 4 lbs (1.8 kg)  
 IP Rating: IP67 front and back, IP66 panel seal when used with accessory gasket  
 Operating & Storage Temperature: -40° to +85° C (-40° to +185° F)  
 Vibration: 7.86 Grms (5-2000 Hz), 3-axes random  
 Shock: ±50G, 3-axes  
 Emissions & Immunity: SAE J1113

### Communications:

(1) CAN: J1939  
 (1) RS485: Modbus RTU  
 (1) USB: 2.0B (Supported for Programming)

### Mating Connectors:

12 Position, DT06-12SA-PO12 (Gray)  
 12 Position, DT06-12SB-PO12 (Black)  
 12 Position, DT06-12SC-PO12 (Green)

## Connectors

Deutsch 12 pin Connector Gray	
PIN	Function
1	Battery (+)
2	RS485 (+)
3	RS485 (-)
4	Relay 3 NC
5	Relay 3 COM
6	Relay 3 NO
7	Analog In 3
8	Digital In 3
9	Digital In 4
10	Digital In 5
11	Not Used
12	Battery (-)

Deutsch 12 pin Connector Black	
PIN	Function
1	Battery (+)
2	Not Used
3	Digital Out 2 +DC (1A)
4	Digital Out 1 +DC (1A)
5	Digital Out 4 -DC (1A)
6	Digital Out 3 -DC (1A)
7	Analog In 1
8	Analog In 2
9	Digital In 1
10	Digital In 2
11	Frequency In
12	Battery (-)

Deutsch 12 pin Connector Green	
PIN	Function
1	Battery (-)
2	Battery (+)
3	Battery (+) Switched
4	Alt Excite +DC (1A)
5	CAN (H)
6	CAN (L)
7	Relay 1 NO
8	Relay 1 COM
9	Relay 1 NC
10	Relay 2 NO
11	Relay 2 COM
12	Relay 2 NC

Deutsch 6 pin Connector USB	
PIN	Function
1	USB1_VBUS
2	USB_DP_OUT
3	USB_DM_OUT
4	USB_ID_OUT
5	USB_SHLD
6	USB_GND

## How to Order

Part Number	Model/Description
40700494	MPC-10 Controller
40051142	Panel Gasket, IP66, MPC-10
40700506	PowerCore 3X12 Position Connector Kit
40000598	PowerCore 3X12 Position 3' Conn Whip Harness (1m approx.)
78000668	USB Programming Harness