MURPHY

by ENOVATION CONTROLS

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PowerCore™
Model MPC-10
Installation Manual

*Approved by CSA for non-hazardous locations in North America (Group Safety Publication CSA/UL 61010-1 3rd Edition)
Products covered in this document comply with European Council electromagnetic compatibility directive 2004/108/EC and electrical safety directive 2006/95/EC.

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Section 40

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. The latest version of this manual can be found at www.fwmurphy.com.

Warranty - A limited warranty on materials and workmanship is given with this Murphy product. A copy of the warranty may be viewed or printed by going to www.fwmurphy.com/warranty.

BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT:

- Read and follow all installation instructions.
- Visually inspect this product before installation for any damage during shipping.
- Disconnect all electrical power to the machine. Failure to do this before welding can result in damage to the panel and/or its components.
- It is your responsibility to have a qualified technician install the unit and make sure the installation conforms to local codes including but not limited to double insulation and fire containment.
- Observe all Warnings and Cautions in each section of these instructions.
- The MPC-10 is designed for use in industrial environments for monitoring and control which include engine driven pumps, compressors, grinders, chippers and rock crushers. Potential difficulties may exist when ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbances.

Contact Enovation Controls Technical Service if you have any questions or concerns at: +1 918-317-4100.

IMPORTANT! Improper use and operation of electronic products can be dangerous. It is required that point-of-operation guarding devices be installed and maintained. All such devices must meet OSHA and ANSI Machine safety standards. The manufacturer shall not accept any responsibility for installation, application or safety of systems.

The MPC-10 can be set as an AutoStart Controller. Please be cognizant at all times of hands and other objects that are in close proximity to the machine(s) being controlled as they may commence operation suddenly and without warning.

LENS CLEANING PROCEDURES

The lens on the MPC-10 is composed of Polycarbonate materials. Use only mild soap and water to clean the lens/display window. Evidence of improper cleaning techniques or chemicals includes cracks, smear marks, scratches, or fogged/hazy lenses.

Table of Contents

Operations Manual Location **1**

Hardware Installation **1**

Inspecting Package Contents 1

Tools Needed 1

Installation 2

Dimensions for Installation **4**

Wiring Instructions **6**

PIN Specifications for Deutsch Connections 6

Connector 7

Accessories **7**

Specifications **8**

Electrical 8

Environmental 9

Mechanical 9

Operations Manual Location

After installation, please review the MPC-10 Operations Manual prior to placing the controller into service. In order to access the MPC-10 Operation Manual, please visit the MPC-10 product page to download or print a copy located under the literature tab.

www.fwmurphy.com/mpc-10

Hardware Installation

Inspecting Package Contents

Before attempting to install the product, it is recommended that you ensure all parts are accounted for and inspect each item for damage (which sometimes occurs during shipping). The items included in the box are:

MPC-10 Controller kit – P/N 40-70-0494 includes:

- MPC-10 Controller
- 4 (6-32) mounting screws with lock washers
- MPC-10 Installation Manual – P/N 00-02-0938

Tools Needed

Use an 11/64 drill bit to make the approximately sized 0.0170" mounting holes.

Installation

Preparing the Enclosed Panel

Determine the location of the MPC-10 on the customer-supplied flat or enclosed panel. The suitability of the enclosure is subject to investigation by the local authority having jurisdiction at the time of the installation.

Use the Installation Template measurements as a guideline to cut a hole to the specified dimensions. A full-size template is included in the middle of this manual for your convenience. Drill holes where indicated on the template for the mounting screws.

Once the holes are cut, ensure there is adequate clearance for the edges of the MPC-10 housing to mount flush against the outside surface of your panel.

Recommended torque for tightening the mounting screws is 7.5-inch pounds. Although thread lock is not required, only blue polycarbonate compatible thread lock should be used for the MPC-10 mounting screws.

Insert the MPC-10 controller from the front side of the panel and install the four mounting screws and lock washers. Ensure that there is a good seal between the controller, the gasket (if used) and the mounting panel. Plan the MPC-10 mounting for easy wiring and access.

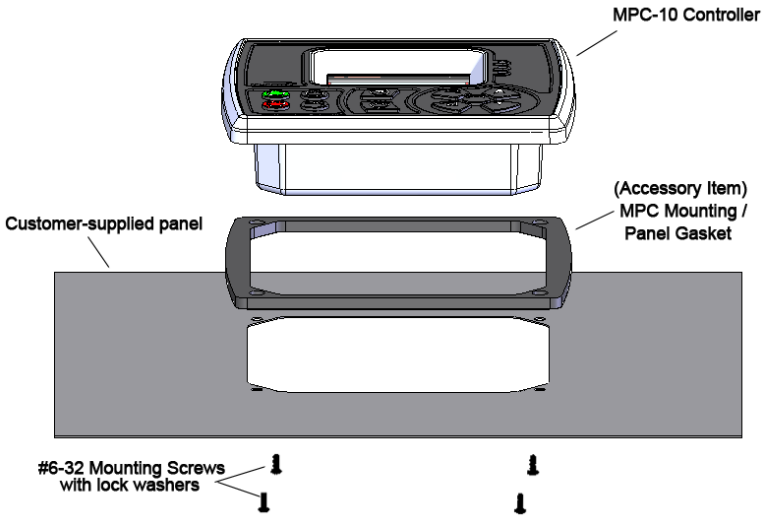
Installing the Display

Place the back side of the display through the opening in the panel.

1. Use the 4 screws to line up the unit with the drilled holes.

2. Ensure that the back of the case is flush.

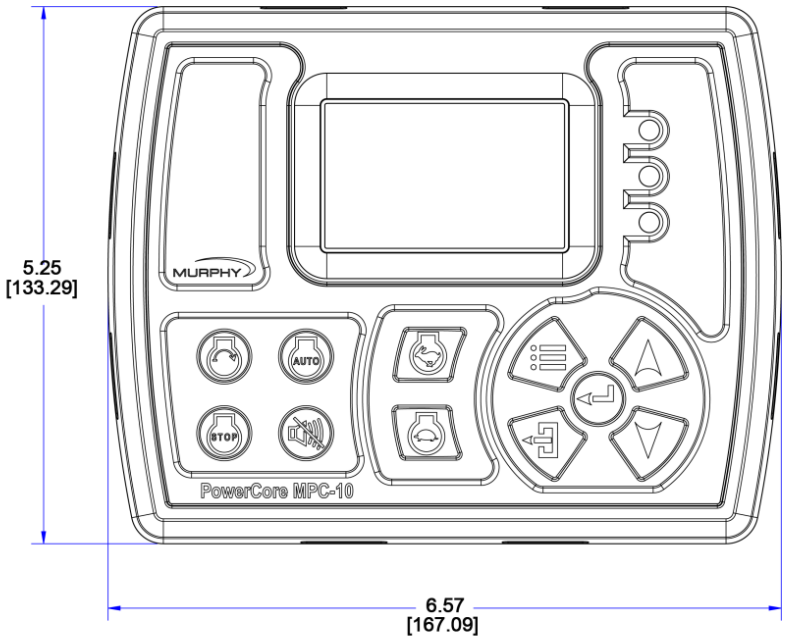
3. Use the screws provided to tighten unit to the panel. Use the appropriate wrench or socket to tighten. Torque screws to 7.5 inch pounds.



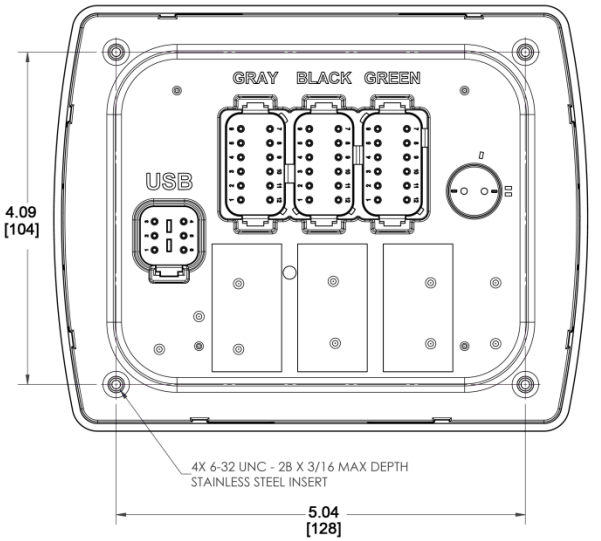
Dimensions for Installation

Front

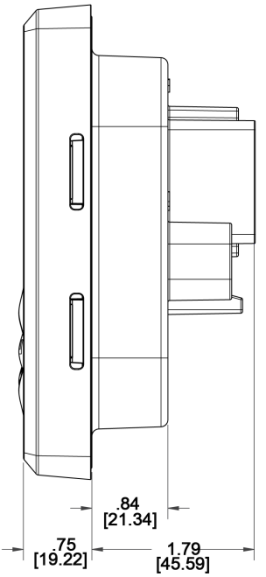
Inches [mm]



Back View



Side View



Wiring Instructions

PIN Specifications for Deutsch Connections

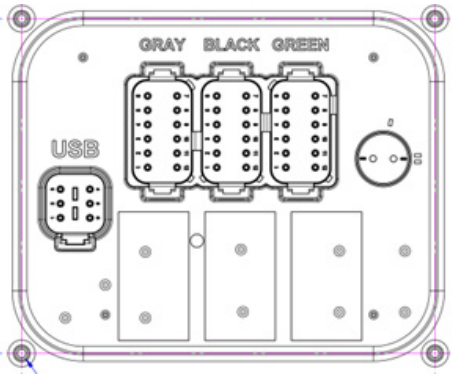
PIN	12 Pin Gray	PIN	12 Pin Black	PIN	12 Pin Green
1	Battery (+)	1	Battery (+)	1	Battery (-)
2	RS485 (+)	2	Not Used	2	Battery (+)
3	RS485 (-)	3	Digital Out 2, +DC (1A)	3	Battery (+) Switched
4	Relay 3 NC	4	Digital Out 1, +DC (1A)	4	Alt Excite, +DC (1A)
5	Relay 3 COM	5	Digital Out 4, -DC (1A)	5	CAN (H)
6	Relay 3 NO	6	Digital Out 3, -DC (1A)	6	CAN (L)
7	Analog In 3	7	Analog In 1	7	Relay 1 NO
8	Digital In 3	8	Analog In 2	8	Relay 1 COM
9	Digital In 4	9	Digital In 1	9	Relay 1 NC
10	Digital In 5	10	Digital In 2	10	Relay 2 NO
11	Not Used	11	Frequency In	11	Relay 2 COM
12	Battery (-)	12	Battery (-)	12	Relay 2 NC

PIN	6 PIN USB
1	USB1_VBUS
2	USB_DP_Out
3	USB_DM_Out
4	USB_ID_Out
5	USB_Shld
6	USB_Gnd

Wiring of this device must meet all applicable electrical codes.

Battery lines to the unit must all come through a single 10 Amp or less fuse or circuit breaker to retain CSA certification rating.

Connector



1. Gray DT06-12SA-P012; W12S-P012
2. Black DT06-12SB-P012; W12S-P012
3. Green DT06-12SC-P012; W12S-P012
4. USB (6 pin)

Accessories

Part Number	Description
40051142	IP66 Panel Gasket
40000598	Harness, MPC-10, 3 x 12 POS Conn Whip 3' PowerCore
40700506	Connector Kit, 3 x 12 POS Conn, MPC-10, PowerCore
78000668	USB Programming Harness

Specifications

Electrical

Display: 2.7” WQVGA monochrome HR-TFT 400x240
Operating Voltage: 8-32 VDC, protected against reverse battery polarity and load-dump

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

Cranking Power Holdup: 0 VDC up to 50mS (also good for brownout/blackout instances)

Communications

1-CAN: J1939

USB: 2.0B (Only supported for programming)

RS485: Modbus RTU

Connection:
(1) Gray DT06-12SA-P012; W12S-P012
(1) Black DT06-12SB-P012; W12S-P012
(1) Green DT06-12SC-P012; W12S-P012
(1) 6pin used for USB Programming only

Keyboard: 11 tactile feedback buttons

Inputs (9):

(5) Digital Inputs: configurable (active on High, Low, Open)

(3) Analog Inputs: configurable (4-20mA, 0-5V, resistive or digital ground)

(1) Frequency Input Signal supporting:

Magnetic Pickup (30 Hz – 10 kHz, 2.0 VAC – 120 VAC) and Engine Alternator (30 Hz – 10 kHz, 4.5 VRMS – 90 VRMS)

Outputs (8):

(3) Relays: 10A Form C Dry Contacts (30 VDC @ 10A)

(2) Low-side FET: -DC (1A)

(2) High-side FET: +DC (1A)

(1) Dedicated Alternator Excitation: +DC (1A)

Real-time clock: with battery backup

Environmental

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

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

Protection: IP67 front and back
When using accessory gasket and properly mounted, the panel seal retains IP66.

Emissions: SAE J1113

Immunity: SAE J1113

Vibration: Random vibration, 7.86 gRMS (5-2000 Hz), 3 axes (Vibration specification was met without the use of rubber isolation mounts)

Shock: 50g in 3 axes (Shock specification was met without the use of rubber isolation mounts)

Mechanical

Case Material: Polycarbonate/ABS

Keypad/Gasket Material: Silicone

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ENOVATION CONTROLS CORPORATE HEADQUARTERS
5311 S 122ND EAST AVENUE
TULSA, OK 74146

ENOVATION CONTROLS – SAN ANTONIO OFFICE
5757 FARINON DRIVE
SAN ANTONIO, TX 78249

ENOVATION CONTROLS – HOUSTON OFFICE
105 RANDON DYER RD
ROSENBERG, TX 77471

ENOVATION CONTROLS LTD. – UNITED KINGDOM
CHURCH ROAD LAVERSTOCK
SALISBURY SP1 1QZ UK

MURPHY ECONTROLS TECHNOLOGIES (HANGZHOU) CO, LTD.
77 23RD STREET
HANGZHOU ECONOMIC & TECHNOLOGICAL DEVELOPMENT AREA
HANGZHOU, ZHEJIANG 310018 CHINA

DOMESTIC SALES & SUPPORT

ECONTROLS PRODUCTS
PHONE: 210 495 9772
FAX: 210 495 9791
EMAIL: INFO@ECONTROLS.COM
WWW.ECONTROLS.COM

MURPHY PRODUCTS
PHONE: 918 317 4100
FAX: 918 317 4266
EMAIL: SALES@FWMURPHY.COM
WWW.FWMURPHY.COM

MURPHY CONTROL SYSTEMS & SERVICES
PHONE: 281 633 4500
FAX: 281 633 4588
EMAIL: CSS-SOLUTIONS@FWMURPHY.COM

MURPHY INDUSTRIAL PANEL DIVISION
PHONE: 918 317 4100
FAX: 918 317 4124
EMAIL: IPDSALES@FWMURPHY.COM

INTERNATIONAL SALES & SUPPORT

UNITED KINGDOM
PHONE: +44 1722 410055
FAX: +44 1722 410088
EMAIL: SALES@ENOVATIONCONTROLS.EU
WWW.FWMURPHY.EU

CHINA
PHONE: +86 21 6237 5885
FAX: +86 21 6237 5887
EMAIL: APSALES@FWMURPHY.COM

LATIN AMERICA & CARIBBEAN
PHONE: 918 317 2500
EMAIL: LASALES@FWMURPHY.COM

SOUTH KOREA
PHONE: +82 70 7951 4100
EMAIL: SKOREASALES@FWMURPHY.COM

INDIA
PHONE: +91 91581 37633
EMAIL: INDIASALES@FWMURPHY.COM

FM 28221 (Tulsa, OK - USA)
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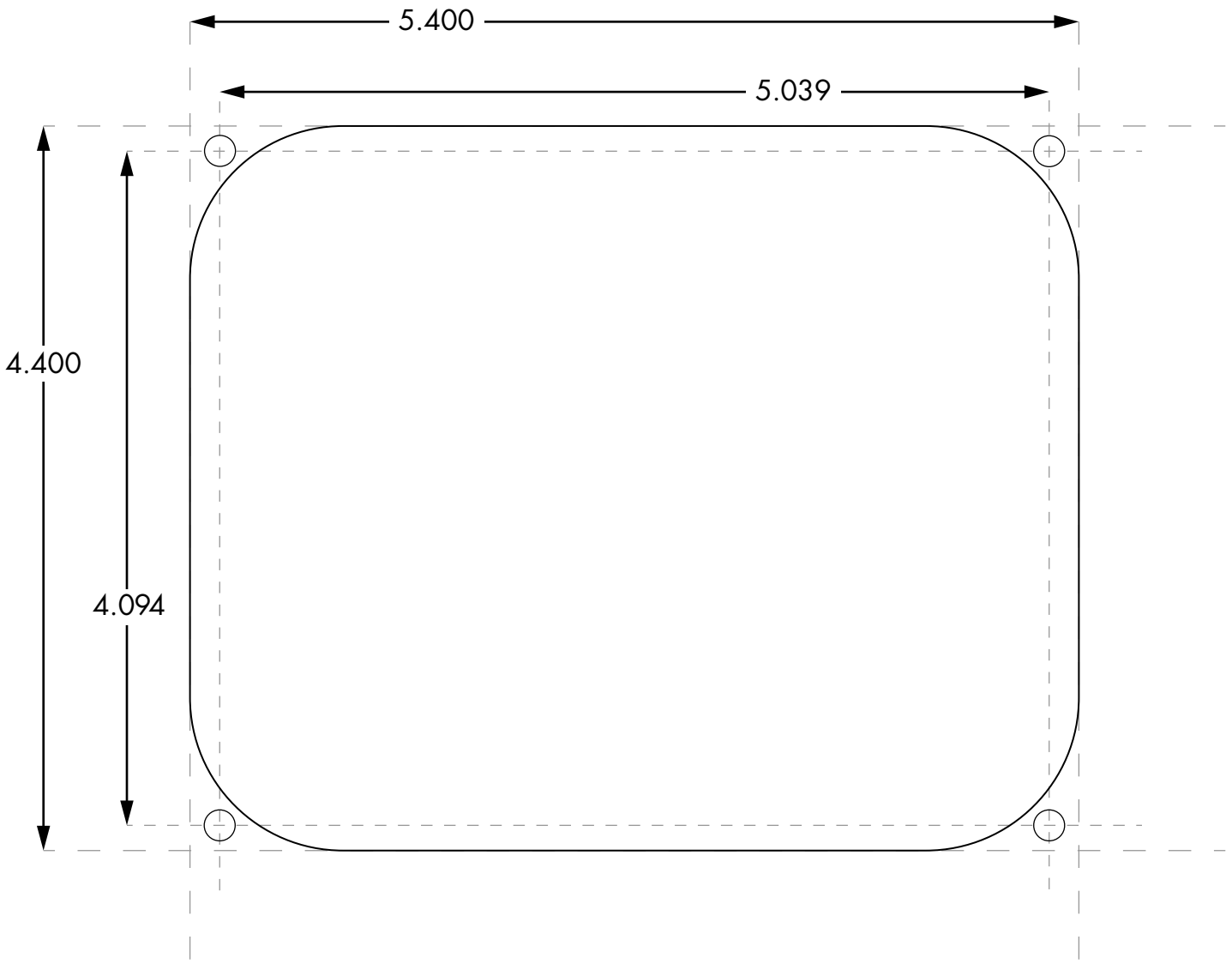
Removable Cut-Out Template



Removable Cut-Out Template