

# PowerCore MPC-20™



## Features

- Auto and Manual Start with Various Throttling Options and Real-Time Clock
- Large 3.8-inch Transflective LCD Viewable in Full Sun Conditions
- Alarm and Shutdown Control with Advanced Diagnostics
- CAN J1939 Communications
- Easy-To-Use Configuration Software
- Tier 4/Stage IIIB/IV Ready

\* Products covered by this bulletin comply with European Council electromagnetic compatibility directive 2004/108/EC, except as noted.  
+ Approved by CSA for Non-hazardous locations (Group Safety Publication IEC 61010-1).

Murphy's PowerCore™ MPC-20 is an all-purpose industrial controller that stands up to some of the harshest environments. This powerful controller is targeted for engine-driven pumps and irrigation, with the versatility to work in most engine-driven applications. The controller can be mounted in a sealed control box but is entirely sealed to meet and/or exceed an IP67 rating.

Easily viewable in full sun conditions, the MPC-20 has a large 3.8-inch monochrome transreflective LCD. Interim and Final Tier 4 ISO symbols appear with engine and application information without the appearance of a cluttered screen.

The MPC-20 is configurable by the user to meet the most versatile applications. The ease of initial setup of the I/O does not leave the user feeling paralyzed when an input is needed for a specific function. This allows for quicker uptime and less headache while on the manufacturing floor or in the field.

Although a configuration tool is not required, it provides the ability to configure the controller's setpoints on the PC and save them in a file for future loading. A standard setpoint configuration tool is included as a free download to allow customized default settings for building application- or customer-specific configurations.

The MPC-20 has proved design through internal and external testing including HALT (Highly Accelerated Life Testing) and third party approvals.

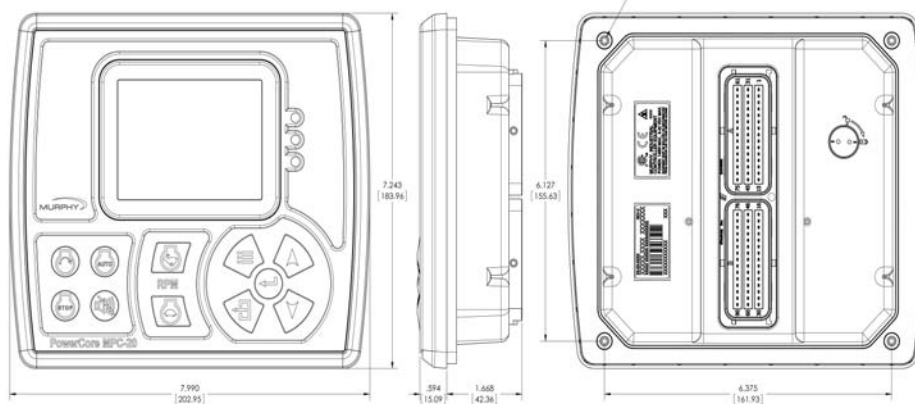
## Connectors

Delphi SICMA 90 Way Connector 1-30	
Pin	Function
1	Switched Power (+)
2	Ground (-)
3	Analog Input 1 (Resistive,0-5V,4-20mA)
4	Analog Input 2 (Resistive,0-5V,4-20mA)
5	Analog Input 3 (Resistive,0-5V,4-20mA)
6	Analog Input 4 (Resistive,0-5V,4-20mA)
7	Analog Input 5 (Resistive,0-5V,4-20mA)
8	Analog Input 6 (Resistive,0-5V,4-20mA)
9	Analog Input 7 (Resistive,0-5V,4-20mA)
10	Analog Input 8 (Resistive,0-5V,4-20mA)
11	Reserved
12	RS485 Low
13	RS485 High
14	Reserved
15	Reserved
16	USB D+
17	USB Ground
18	Relay 4 Normally Closed
19	Relay 4 Common
20	Relay 4 Normally Open
21	Reserved
22	Relay 5 Normally Closed
23	Relay 5 Common
24	Relay 5 Normally Open
25	Reserved
26	Relay 6 Normally Closed
27	Relay 6 Common
28	Relay 6 Normally Open
29	Low-side FET 1 (1A Max)
30	Low-side FET 2 (1A Max)

Delphi SICMA 90 Way Connector 31-60	
Pin	Function
31	Power (+)
32	Ground (-)
33	Digital Input 1 (Power or Ground)
34	Digital Input 3 (Power or Ground)
35	Digital Input 5 (Power or Ground)
36	Reserved
37	Reserved
38	Reserved
39	Reserved
40	Analog Output
41	Reserved
42	Reserved
43	Reserved
44	Reserved
45	Reserved
46	USB D-
47	USB Shield
48	Reserved
49	Reserved
50	Reserved
51	Reserved
52	Reserved
53	Reserved
54	Reserved
55	Reserved
56	Reserved
57	Reserved
58	Reserved
59	Reserved
60	Reserved

Delphi SICMA 90 Way Connector 61-90	
Pin	Function
61	Power (+)
62	Ground (-)
63	Digital Input 2 (Power or Ground)
64	Digital Input 4 (Power or Ground)
65	Digital Input 6 (Power or Ground)
66	High-side FET 1 (2A Max)
67	High-side FET 2 (2A Max)
68	Reserved
69	Frequency Input
70	Ground (-)
71	Reserved
72	CAN Low
73	CAN High
74	Reserved
75	Reserved
76	USB VBUS
77	USB ID
78	Relay 1 Normally Closed
79	Relay 1 Common
80	Relay 1 Normally Open
81	Reserved
82	Relay 2 Normally Closed
83	Relay 2 Common
84	Relay 2 Normally Open
85	Reserved
86	Relay 3 Normally Closed
87	Relay 3 Common
88	Relay 3 Normally Open
89	5VDC Output 1 (200mA Max)
90	5VDC Output 2 (200mA Max)

## Dimensions



## Specifications

### Model: MPC-20

**Display:** 3.8" Monochrome LCD, Transflective, 320 X 240 QVGA with White Backlight

**Keypad:** 11 Tactile Feedback Buttons

**LEDs:** (1) Red, Shutdown, (1) Amber, Warning, (1) Green, Auto Mode

**Outputs:** (2) 1A Max Low-side

(2) 2A Max High-side

(2) 200mA Max 5VDC

(1) 0-5VDC Analog

(6) 10A Max Form C Relays

**Inputs:** (8) Analog, Configurable as Resistive, 0-5VDC, 4-20mA or Digital Ground

(6) Digital, Configurable as Battery or Ground

(1) Frequency, (2Hz - 10KHz, 3.6VAC-120VAC)

**Communications:** (1) CAN 2.0B, 250 kbps, J1939

(1) RS485, Modbus RTU

(1) USB, Programming

**Power Input:** 8-32VDC, Reverse Polarity & Load Dump Protection

**Total Current Consumption:** 18W Max without 2 2A High-sides, active, 146W Max with 2 2A High-sides active.

**Dimensions:** 208.7mm (L) x 189.7mm (W) x 57.5mm (H)

**Mass:** 0.9kg (2.0lb)

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

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

**EMI/RFI:** SAE J1113

**Shock:** 50G in X, Y, Z Axes

**Vibration:** Random, 7.86 Grms (5-2000Hz), 3 Axes

**Sealing:** IP67 Complete Controller, IP66 Panel Mount with Gasket (Minimum 14Ga Metal Plate)

**Case:** Polycarbonate

**Mating Connector:** Delphi, SICMA 90 Position

**Shipping Weight:** 2lbs. 7.1 oz (1.11 kg.)

**Shipping Dimensions:** 9.5 x 9 x 5 in. (241 x 229 x 127 mm.)

## How To Order

Part Name	Model	Part Number
Controller	MPC-20	40-70-0490
Panel Gasket	Gasket, IP66, MPC-20	40-05-1031
Connector Kit	PowerCore 90 Position Conn Kit	40-70-0496
3' Whip	PowerCore 90 Position Conn Whip Harness	40-00-0554

Enovation Controls recommends using the Delphi Crimper, part number 15S3F178060103 for the terminals in the connector kit.

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**ISO 9001**  
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USA (ROSENBERG) - ISO 9001:2008 FM 28221  
UK - ISO 9001:2008 FM 29422  
CHINA - ISO 9001:2008 FM 522851  
Registered Facilities

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