

Generator Control System

FWMurphy



MGC2000

- New Dynamic Design Allows for Easy Installation and Full Operation Flexibility
- Features Murphy's AS3000 Engine/Generator Controller
- User-Friendly, Well Thought-out Routine for Faster/Easier Setup

Description

The compact and powerful MGC2000 generator control system features a unique, simple-to-install and setup design and enhanced operation. The control method for the MGC2000 may be specified for using either the AS3000 Autostart automatic controller or the 518APH electrically tripped annunciator method.

The system is available in two basic configurations:

MGC2000 features mechanical gages:

- **MGC2000-A Automatic Control:** with Murphy's AS3000 Generator Controller.
- **MGC2000-M Manual Control:** with 518APH annunciator control.

Both configurations include standard AC voltmeter, AC ammeter, and frequency meter. Available for single-phase, standard three-phase, and three-phase, re-configurable generators.

MGC2000E features electric gages:

- **MGC2000E-A Automatic Control:** with Murphy's AS3000 Generator Controller.
- **MGC2000E-M Manual Control:** with 518APH annunciator control.

Both configurations include standard AC voltmeter, AC ammeter, and frequency meter. Available for single-phase, standard three-phase, and three-phase, re-configurable generators.

Features

- **Dynamic design allows for easy installation and full operation flexibility.**
- **1/4 inch quick disconnect terminations**
- **Shock mount assemblies to minimize damage**
- **AC voltmeter and ammeter**
- **Phase selector switch**
- **Frequency meter: 45-65hz**
- **Optional hourmeter; DC Voltmeter; DC ammeter**
- **First-out fault shutdown and indication (AutoStart models only)** of low oil pressure, high temperature and auxiliary inputs
- **Inputs can be from engine-mounted fault switches or panel-mounted SWICHGAGE® instruments.**
- **Magnetic pickup or generator AC speed sensing (AutoStart models only).** For automatic crank release and overspeed fault shutdown. Speed calibration is automatic—adjustment free. Additional switch inputs allow optional remote control of crank disconnect and overspeed fault.
- **Generator AC Hz meter output: 0-1 mA.**
- **User-friendly:** Well-thought-out routine for faster and easier set up.
- **Interfaces with existing equipment:** functions seamlessly with many other Murphy instruments and controls (AutoStart models only).

Specifications

- Pressure Gage:** 100°psi (680 kPa) [7 bar]
- Mechanical Gage Pressure Connection:** 1/8" NPT.
- Electric Gage Pressure Connection:** 2-wire.
- Temperature Gage:** 0-250°F (121°C)
- Mechanical Gage Temperature Connection:** 12ft. (3.67 m) capillary tubing and sensing bulb.
- Electric Gage Temperature Connection:** 2-wire.
- Enclosure:** 16 Ga CRS powder coated.
- Optional NEMA 4X Type Enclosure:**
Water and dust tight indoor/outdoor enclosure intended to protect enclosed equipment against splashing, seepage, falling or hose-directed water and severe external condensation.
- AC Meters:** AC ammeter and an AC voltmeter and a frequency meter are standard features. Ranges must be specified.
- Single or Three Phase:** Specify.
- Control Method:** may be specified:
 - AS3000 Autostart automatic controller or
 - 518APH Annunciator control method.
- NOTE:** Autostart method is highly recommended.
- DC Voltage:**
12 or 24 volt DC voltage must be specified.



ASM3000 Controller Specifications

Power supply:

- Continuous voltage range: 8-35 VDC
- Brown out voltage < 5 VDC for 2 secs (recovery to 8V)
- Blackout voltage: 0V for 50mS (from 10V, recovery to 5V)
- Overvoltage withstand: 50 VDC for 5 seconds (to SAEJ1810 load dump immunity)
- Reverse voltage withstand: 100 VDC continuous

Current consumption (standby): 50mA

Current consumption (max): 500mA (plus output loads)

DC Inputs:

- Pressure, coolant temperature
- Closed to negative DC ($\pm 3V$) on fault auxiliary and charger faults
- Remote start positive open from positive DC to start
- Remote start negative close to negative DC ($\pm 3V$) to start.

AC Inputs:

- Magnetic pickup: 3 – 60 VAC, 50Hz – 10 kHz.
- Generator AC: 600 VAC max (L-L or L-N), 50/60 Hz.

Outputs:

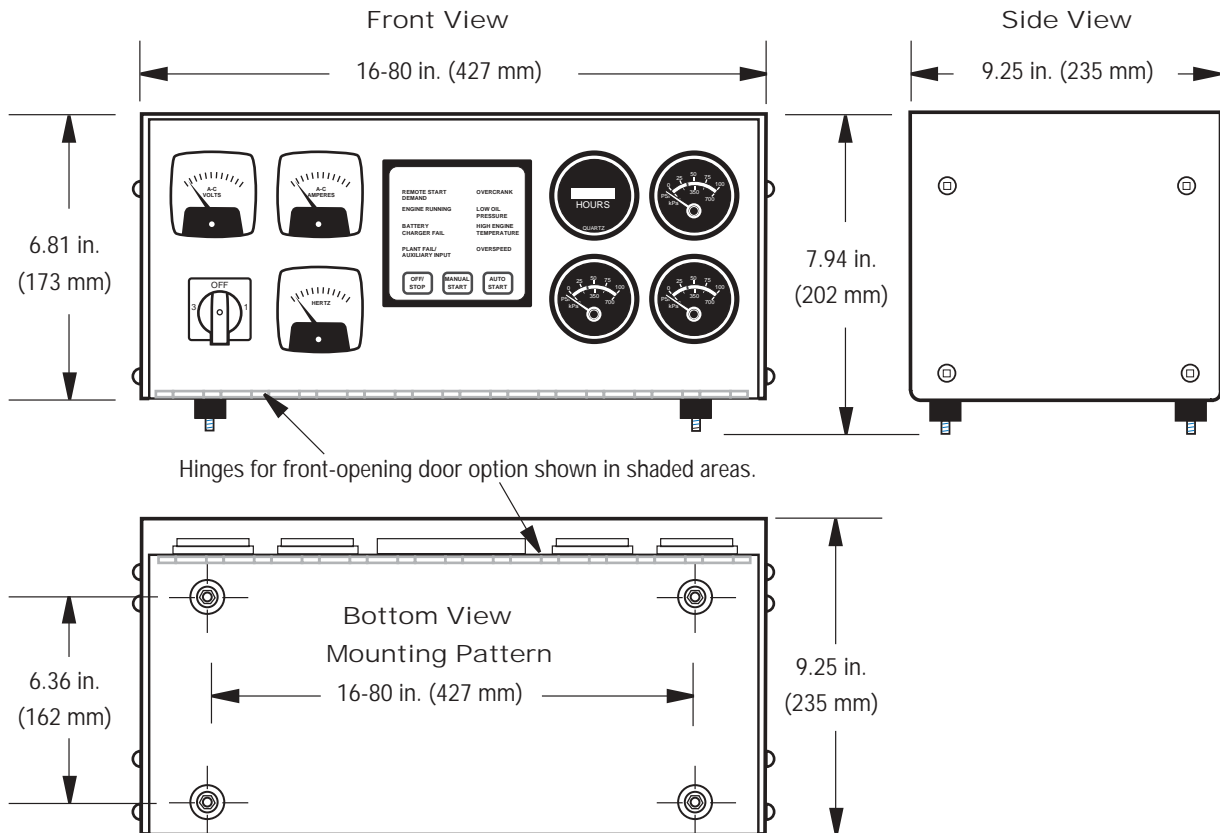
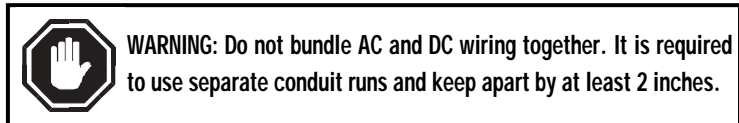
- Fuel: positive DC (FET switched), 5A max.
- Crank, preheat: positive DC (FET switched), 2A max.
- Common alarm, fault lockout negative DC (semiconductor), 300mA max.
- Generator Hz. meter: 0 – 1 mADC (@ 45–65Hz).

Physical:

- Operating temperature: -10 to +65 °C
- Relative humidity: 95% @ 60 °C
- Environmental protection: AS3000U front: IP65, NEMA4
- Vibration: ISO 88528 pt.9, & 3 axis 3g

Standard terminal blocks inside the MGC2000 enclosure. Booted type grommets for a tight seal are available.

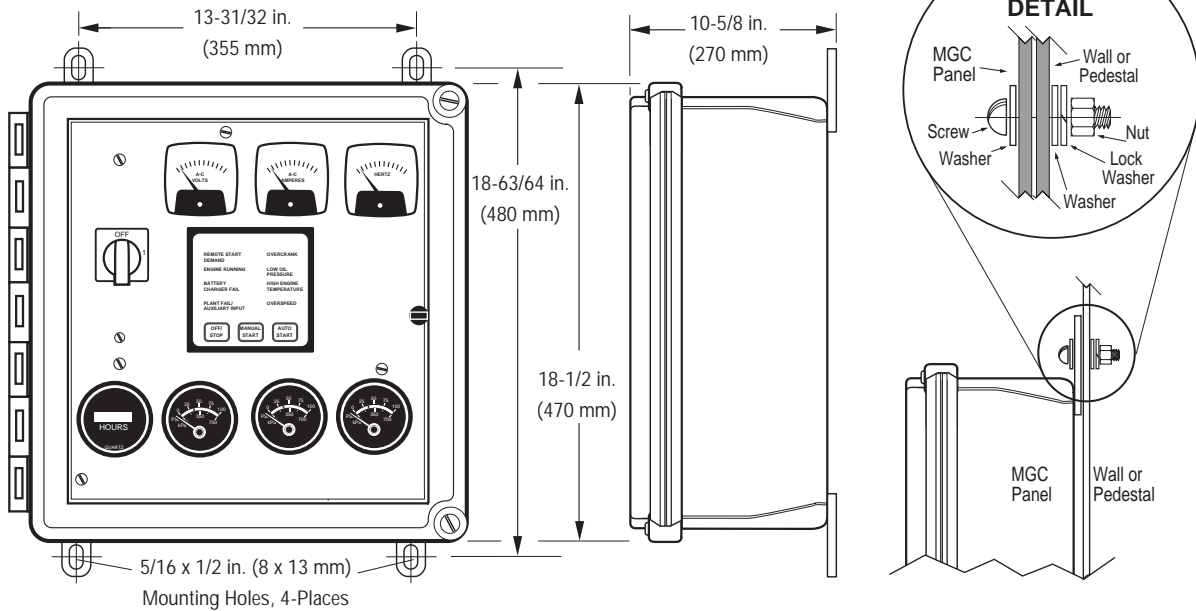
Standard Enclosure Dimensions (all Models)



NEMA 4X Type Enclosure Dimensions



WARNING: Do not bundle AC and DC wiring together. It is required to use separate conduit runs and keep apart by at least 2 inches.



MGC2000 System Options

- DC Voltmeter*
 - DC Ammeter*
 - Hourmeter*
 - Relays. 4 relays, wired for Preheat, Crank, Fuel, and Common Alarm
 - Keyswitch
 - Phase select switch, standard for 3-phase units, optional for single-phase units.
 - Emergency stop switch
 - NEMA-4X enclosure
 - Quick disconnect connectors
 - Hinged front panel
 - Magnetic pickup sensor
 - CT's (current transformers)
 - User connections
- If the Quick Disconnect option is selected, two quick disconnect connectors are provided on the rear of the enclosure, mating connectors with 12 ft. (3.658 m) tagged leads are available.
 - If the Quick Disconnect option is not selected, grommeted holes are provided for user's cable entry. Connections via spade lugs will be made to standard terminal blocks inside the MGC2000 enclosure. Booted type grommets for a tight seal are available.
- * *The MGC2000 enclosure has provisions for two extra instruments only, these two instruments can be selected in any combination.*

How to Order the MGC2000

MGC2000 1 - A - 12 - 300 - 600D - AMVMRLKS4XMP

Base Model

MGC2000 = Mechanical Gages
MGC2000E = Electric Gages

Phases

1 = Single Phase
3 = Three Phase

Controller

A = Autostart
M = Manual

DC Voltage

12 = 12 VDC
24 = 24 VDC

AC Voltmeter

300, 600
600D = 600/300 Dual Scale

Options

AM = DC Ammeter⁽¹⁾
VM = DC Voltmeter⁽¹⁾
HM = Hourmeter⁽¹⁾
RL = Relays
KS = Keyswitch
PS = Phase Select Switch (single phase only)
ES = Emergency Stop Switch
4X = NEMA 4X Enclosure
QD = Quick Disconnect Connectors
HF = Hinged Front
MP = Magnetic Pickup Sensor⁽²⁾
CT = Provide CT's⁽²⁾

NOTE: Enter Options prefix in the listed order, example: **AMVMRLKS4XMP**.

⁽¹⁾ Select a maximum of 2 of these 3 items.

⁽²⁾ "Shipped Loose" items.

AC Ammeter

50, 60, 75, 100, 150, 200, 300, 400, 500, 600, 800, 1000,
1200, 1500, 2000, 3000, 4000

100D= 50/100 Dual Scale
200D= 100/200 Dual Scale
300D= 150/300 Dual Scale
400D= 200/400 Dual Scale
600D= 300/600 Dual Scale
800D= 400/800 Dual Scale
1000D= 500/1000 Dual Scale
1200D= 600/1200 Dual Scale
1600D= 800/1600 Dual Scale
2000D= 1000/2000 Dual Scale
3000D= 1500/3000 Dual Scale
4000D= 2000/4000 Dual Scale
5000D= 250/5000 Dual Scale

Accessories and Replacement Parts

Off-Equipment Mounting Kit

This kit allows off-equipment mounting of the ESPM, ES2PM and ESDPM pressure senders. Recommended for protection from damaging vibration. Customer supplies hose and fittings.

Specify part number 30-00-0213 when ordering.

Sender	Description
ESP	1-wire to ground sender [†]
ES2P	2-wire ungrounded sender [†]
ESDP	2-wire ungrounded sender, drives two (2) gages [†]
ESPM	1-wire to ground sender ^{††**}
ES2PM	2-wire ungrounded sender ^{††**}
EST	1-wire to ground sender*
ES2T	2-wire ungrounded sender*
ESDT	2-wire ungrounded sender, drives two (2) gages*

Connectors

Quick Disconnect mating connectors with 12' tagged leads.

[†] Thru 100 psi (689 kPa) [6.89 bar].

^{††} Ranges above 100 psi (689 kPa) [6.89 bar].

** Mounting off-equipment recommended.

Warranty

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



FWMurphy

P.O. Box 470248
Tulsa, Oklahoma 74147 USA
(918) 317-4100
fax (918) 317-4266
e-mail sales@fwmurphy.com
www.fwmurphy.com

CONTROL SYSTEMS & SERVICES DIVISION
P.O. Box 1819; Rosenberg, Texas 77471; USA
(281) 633-4500 fax (281) 633-4588
e-mail sales@fwmurphy.com

MURPHY DE MEXICO, S.A. DE C.V.
Blvd. Antonio Rocha Cordero 300, Fracción del Aguaje
San Luis Potosí, S.L.P.; México 78384
+52-444-8206264 fax +52-444-8206336
Villahermosa Office +52-993-3162117
e-mail ventas@murphymex.com.mx
www.murphymex.com.mx

FRANK W. MURPHY, LTD.
Church Rd.; Laverstock, Salisbury SP1 10Z; U.K.
+44 1722 410055 fax +44 1722 410088
e-mail sales@fwmurphy.co.uk
www.fwmurphy.co.uk

MURPHY SWITCH OF CALIFORNIA
41343 12th Street West
Palmdale, California 93551-1442; USA
(661) 272-4700 fax (661) 947-7570
e-mail sales@murphyswitch.com
www.murphyswitch.com

MACQUARRIE CORPORATION
1620 Hume Highway
Campbellfield, Vic 3061; Australia
+61 3 9358-5555 fax +61 3 9358-5558
e-mail murphy@macquarrie.com.au



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