C H A P T E R ②

Installation

Section Objectives

The information in this section will enable you to:

❏ Verify that each component of your system has been delivered safely and completely

❏ Become familiar with components and their interrelationships

❏ Understand the I/O functions and installation guidelines

OEM070 Ship kit

Inspect the OEM070 upon receipt for obvious damage to its shipping container. Report any such damage to the shipping company. Parker Compumotor cannot be held responsible for damage incurred in shipment. You should receive an OEM070 and a Servo Controller User Guide. Compare your order with the units shipped.

Part	Part Number
Controller	OEM070
OEM070 User Guide	*88-014163-01*

OEM070 Mounting and Dimensions

Refer to the instructions and diagrams in this section for specific mounting information.

OEM070 DIMENSIONS

The OEM070 mounting is designed to minimize panel area and footprint. It can be mounted in a minimum area or a minimum depth configuration.

PROVISION FOR
#6 (M3) MTG. SCREWS
(2 PLCS.)

OPTIONAL MOUNTING TABS FOR
MINIMUM DEPTH CONFIGURATION
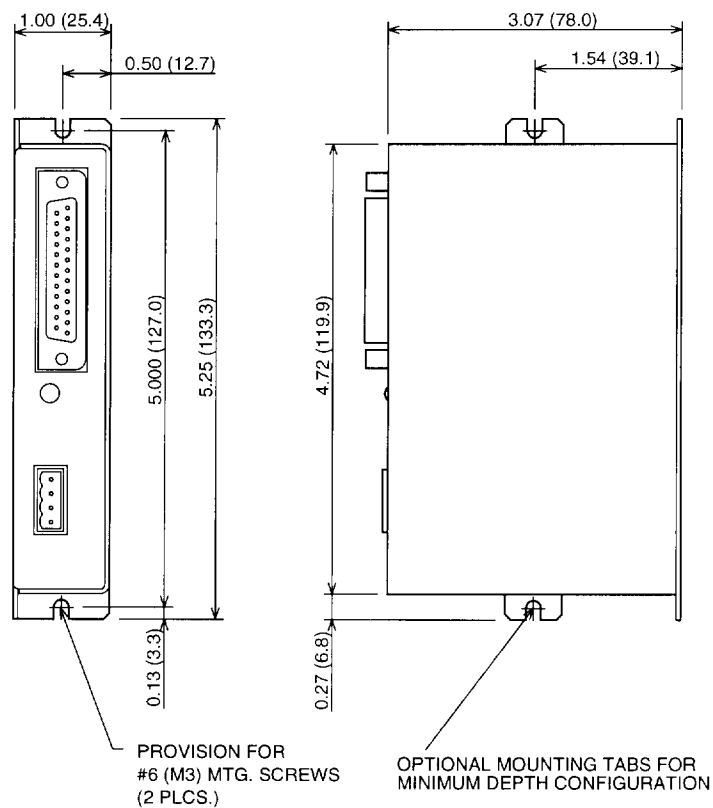
*OEM070 Dimensions In Inches (Millimeters)*

OEM070 MOUNTING

The OEM070 produces very little heat and can be mounted almost anywhere. The OEM070 is not water-proof, dust-proof, or splash proof, so please provide suitable controller protection. If you mount the OEM070 in an enclosure, observe the following guidelines:

❑ Do not mount large, heat-producing equipment directly beneath the OEM070.

❑ Do not mount the OEM070 directly above a drive (the drive produces more heat than the OEM070).
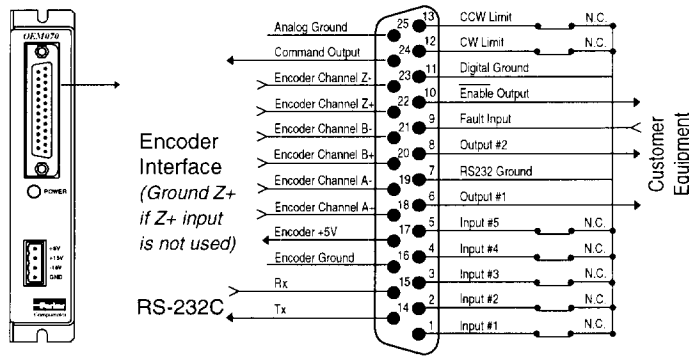
Power Supply Connections

Connect a DC power supply to the 4-pin power input connector on the OEM070. Power supply requirements are:
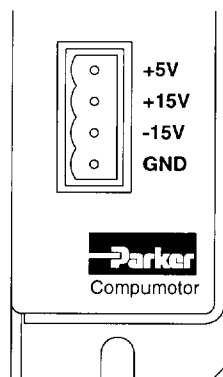
Input Voltage		Input Current (minimum)
+15 VDC	at	15 mA
-15 VDC	at	15 mA
+5 VDC	at	300 ma

Be sure to connect the power supply ground to the OEM070 ground.

OEM070 Inputs and Outputs

CAUTION
I/O is not OPTO isolated, I/O GND is common to GND. For greater noise immunity, we recommend the use of optical isolation modules. For added noise immunity, this controller has a digital filter; each input must be true for three successive cycles before recognizing a given state.

GENERAL PURPOSE INPUTS (SIGNAL 1 – SIGNAL 5)

The OEM070 has 5 general purpose inputs. Each of these inputs may be configured to match the application needs. The figure represents a typical configuration of one of these inputs.
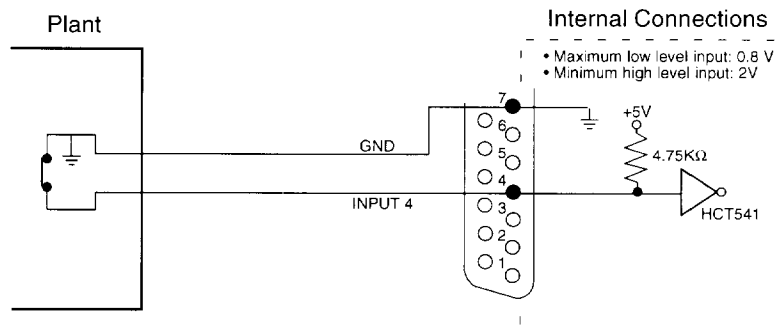
Internal Connections for Pins 1-5 are identical

General Purpose Input Connected to a Switch

The **IN** command is used to configure the inputs to the following functions:

Trigger Input
The OEM070 can dedicate up to five Trigger inputs. These inputs are pulled up internally. These inputs are used with the Trigger **(TR)** command to control the OEM070's trigger function. Minimum pulse width is 1 ms.

Home Position Input
The OEM070 can dedicate up to one Home input. The Home input allows you to establish a home reference position. This input is not active during power-up. Refer to the Go Home **(GH)** command for more information on setting up and using this function. Minimum pulse width is 1 ms.

Sequence Select Input
The OEM070 can dedicate up to three Sequence Select inputs that allow you to control seven different sequences. Sequences are executed remotely by using one of the following logic patterns in conjunction with the **XP** command.

Sequence #	Ø	1	2	3	4	5	6	7
SEQ Input #1	Ø	1	Ø	1	Ø	1	Ø	1
SEQ Input #2	Ø	Ø	1	1	Ø	Ø	1	1
SEQ Input #3	Ø	Ø	Ø	Ø	1	1	1	1

Ø = low, pulled to ground
1 = high, 5VDC

Stop or Kill Input
The OEM070 can dedicate up to one Stop and one Kill input. The active state is high. The Stop or Kill input is identical in function to the effect of the **S** or **K** command respectively.

Go Input
The OEM070 can dedicate up to one Go input. The active state is high. The Go input is identical in function to the effect of the GO **(G)** command.

CAUTION
Unless configured otherwise (**SSH** command), the controller will dump the commands following the IN command in the buffer. Please pay special attention to the state of the inputs before entering the IN command.

OUTPUT #1 (SIGNAL 6) AND OUTPUT #2 (SIGNAL 8)

The OEM070 has two dedicated programmable +5 volt outputs. They may be used to signal peripheral devices upon the start or completion of a move. The default state for Outputs #1 and #2 is logic low. Refer to the Output (**O**) command for information on using these outputs.

The next drawing shows the schematic for one of the outputs.

Internal Connections for Pins 6 and 8 are identical
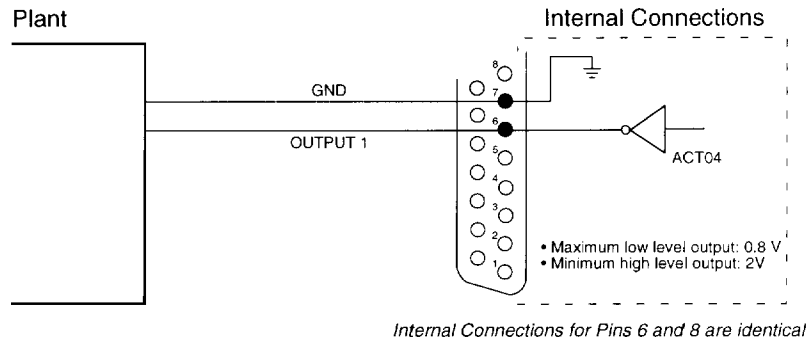
General Purpose Outputs

CW (SIGNAL 12) & CCW (SIGNAL 13) LIMIT INPUTS

The OEM070 has two dedicated hardware end-of-travel limits (CCW and CW). When you power up the OEM070, these inputs are enabled (high). To test the OEM070 without connecting the CCW and CW limits, you must disable the limits with the **LD3** command. You can use the Limit Switch Status Report (**RA**) and Input Status (**IS**) commands to monitor the limits' status. The following figure represents a typical configuration of these inputs. Minimum pulse width is 1 ms.

Internal Connections for Pins 12 and 13 are identical
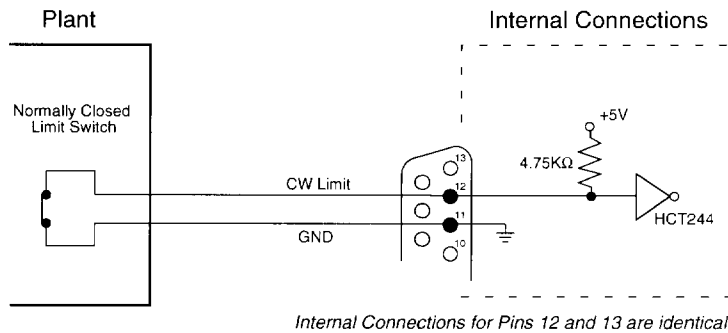
Hardware Limit Switch Inputs

DEDICATED FAULT INPUT (SIGNAL 9)

The OEM070 has one dedicated fault input. This input may be used to signal a drive fault to the OEM070. The fault input's active state is a logic high state. The **R** and **RSE** command will report the controller's error conditions. The next figure represents a typical configuration of this input.
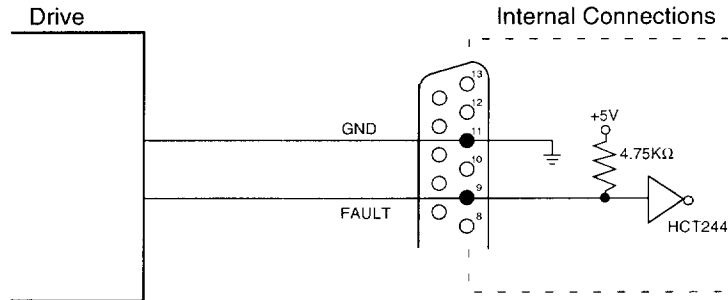
Fault Input

RS-232C—TX (SIGNAL 14), RX (SIGNAL 15), AND GROUND (SIGNAL 7)

The OEM070 uses RS-232C as its communication medium. The controller does not support handshaking. A typical three-wire (Rx, Tx, and Signal Ground) configuration is used. The figure represents a typical RS-232C configuration.

RS232 Input

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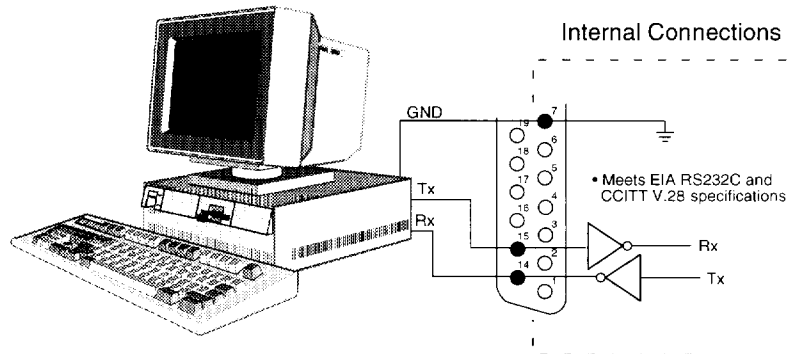
ENABLE OUTPUT (SIGNAL 10)

The OEM070 has an enable output that can be connected to the drive. This output can enable and disable the drive. The signal's active level is low. A position error, OFF command or an ST1 command will produce a high signal on this ouput.
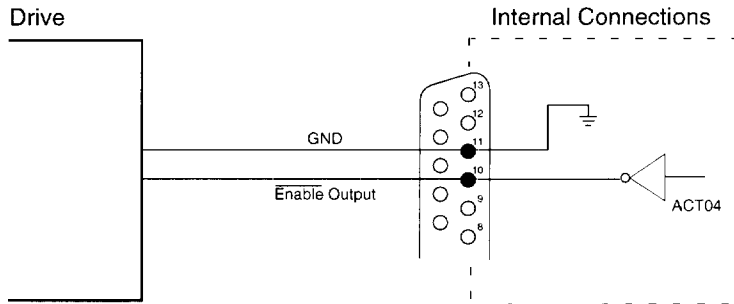
Enable Output

ENCODER INPUTS: +5V,A,B,Z ,GND (SIGNALS 16 - 23)

The OEM070 has six dedicated inputs for use with a differential incremental encoder. These inputs provide the position information for the servo loop.

OEM070 Encoder Input

Internal Connections for CHA (18,19),
CHB (20,21) and CHZ (22,23) are identical

CAUTION

If you do not connect an encoder Z-channel output to the OEM070, then you must ground the Z+ input on the OEM070. To do this, connect a jumper wire between the Z+ input (pin 22), and the nearest available ground (pin 16 or pin 11).

ENCODER SPECIFICATIONS: SM & NEOMETRIC MOTORS

The same type of encoder is used on all SM and NeoMetric Series motors. Encoders have either 500 lines ("-D") or 1000 lines ("-E).

<u>Mechanical</u>

Accuracy	±2 min of arc

<u>Electrical</u>

|	
Input power	5 VDC ±5%, 135 mA
Operating frequency	100 kHz max
Output device	26LS31
Sink/Source, nominal	20 mA
Suggested user interface	26LS32

SM Motors, Size 16 and Size 23 – Encoder Wiring

Designation	Pin No. MS14-18	Pin No. MS14-18	Not Applicable	Wire Color
Vcc	H	H	—	Red
Ground	G	G	—	Black
CH A+	A	A	—	White
CH A-	B	B	—	Yellow
CH B+	C	C	—	Green
CH B-	D	D	—	Blue
Index +	E	E	—	Orange
Index -	F	F	—	Brown
Shield	NC	NC	—	—

NeoMetric and J Series Motors, Size 070 (Size 031) – Encoder Wiring

Designation	Pin No. MS14-18	Wire Color
Encoder		
+5 VDC	H	Red
Ground	G	Black
CH A+	A	White
CH A-	B	Yellow
CH B+	C	Green
CH B-	D	Blue
Index +	E	Orange
Index -	F	Brown

DAISY CHAINING

You may daisy chain up to 255 OEM070s. Individual drive addresses are set with the # (Address Numbering) command. When daisy chained, the units may be addressed individually or simultaneously. You should establish a unique device address for each OEM070.

Refer to the figure below for OEM070 daisy chain wiring.
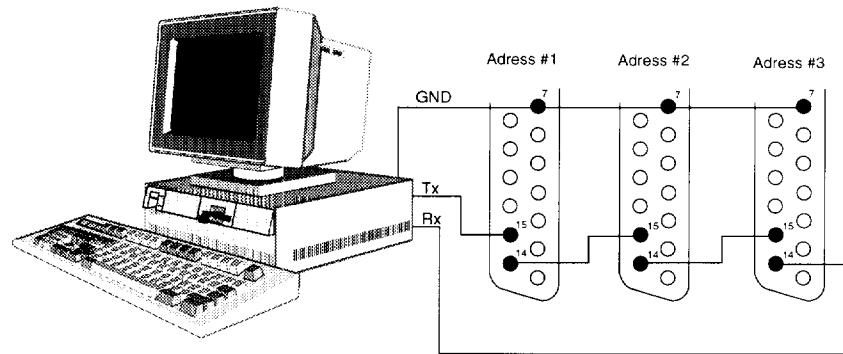
Daisy Chain of 3 OEM070s

Commands prefixed with a device address control only the unit specified. Commands without a device address control all units on the daisy chain. The general rule is: *Any command that causes the drive to transmit information from the RS-232C port (such as a status or report command), must be prefixed with a device address.* This prevents daisy chained units from all transmitting at the same time.

Attach device identifiers to the front of the command. The Go **(G)** command instructs all units on the daisy chain to go, while **1G** tells only unit 1 to go.

When you use a single communications port to control more than one OEM070, all units in a daisy chain receive and echo the same commands. Each device executes these commands, unless this command is preceded with an address that differs from the units on the daisy chain. This becomes critical if you instruct any controller/drive to transmit information. To prevent all of the units on the line from responding to a command, you must precede the command with the device address of the designated unit.