SERIES 61C
(DIMENSIONS FOR 61B ARE SIMILAR)

SERIES 61B

SERIES 61K

## SERIES 61 OPTICAL ENCODERS

Light passage is allowed or interrupted as switch is operated. Provides million cycle life. Encoders produce a two bit, four state code illustrated below. The code repeats every four positions. Number of changes and direction of rotation can be sensed. Panel mount, operator input versions are available in economical (thermoplastic shaft and bushing), type 61C and ruggedized (zinc, die cast bushing), type 61B. High resolution encoders, type 61K provide many more changes per revolution. The four changes of state are defined as one cycle. High resolution encoders create 64, 100, 128, or 250 cycles per revolution and are adaptable to accurately measure flow, speed etc. The Series 61, high res. encoders include Schmitt Trigger outputs. All units require a 5 Vdc external source. Panel mount versions require user supplied pull-up resistors dependent on the type of logic that is used. Switching current: 30 mA max. Temperature range: –40˚C to +65˚C.

| Cat. No. | Description | Termination | Net Price |
|---|---|---|---|
| **STYLE B, RUGGEDIZED PANEL MOUNT** | | | |
| **61B22-01-02** | 16 Position | Switch Pins | **$55.49** |
| **61B22-01-02-050** | 16 Position | 5˝ Cbl/Cnncrt | **56.38** |
| **61B22-01-02-075** | 16 Position | 7.5˝ Cbl/Cnnctr | **57.03** |
| **61B11-01-02** | 32 Position | Switch Pins | **55.49** |
| **61B11-01-02-050** | 32 Position | 5˝ Cbl/Cnncrt | **56.38** |
| **61B11-01-02-075** | 32 Position | 7.5˝ Cbl/Cnnctr | **57.03** |
| **STYLE C, ECONOMICAL PANEL MOUNT** | | | |
| **61C22-01-04-02** | 16 Position | Switch Pins | **26.14** |
| **61C11-01-08-02** | 32 Position | Switch Pins | **26.14** |
| **STYLE K, HIGH RESOLUTION** | | | |
| **61K64** | 64 Position | Switch Pins | **65.27** |
| **61K100** | 100 Position | Switch Pins | **65.27** |
| **61K100-050** | 100 Position | 5˝ Cbl/Cnnctr | **77.49** |
| **61K100-075** | 100 Position | 7.5˝ Cbl/Cnnctr | **77.90** |
| **61K128** | 128 Position | Switch Pins | **65.27** |
| **61K128-050** | 128 Position | 5˝ Cbl/Cnnctr | **70.97** |
| **61K128-075** | 128 Position | 7.5˝ Cbl/Cnnctr | **77.90** |

## SERIES 60A JOYSTICK OPTICAL ENCODER

This joystick action encoder is ideal for human interface applications. Combinations of 20 positions per revolution and 4 joystick directions offer many options for navigation and menu applications. Pushbutton features allows “push to enter” functionality. Rotational and pushbutton life: 1 million cycles. Joystick direction life: 500K cycles. Switching current: 20 mA max. Joystick housing: Polyamide polymer. Solder pins: Phosphor bronze with stainless steel insert. Temperature range: –40˚C to +85˚C.

| Cat. No. | Description | Termination | Net Price |
|---|---|---|---|
| **60A18-4-040C** | 20 positions, 4 contacts | 4.0˝ cable connector | **$76.67** |
| **60A18-4-040S** | 20 positions, 4 contacts | 4.0˝ stripped cable | **76.67** |

## SERIES 61S HIGH RESOLUTION 5/8˝ OPTICAL ENCODER

Compact 5/8˝ package. Compatible with CMOS, TTL, and HCMOS Logic. 10 million rotational cycles. Resolution up to 128 cycles per revolution. Available with .125˝ or .25˝ shaft diameter. Operating voltage: 5 VDC. Output: Standard quadrature 2 bit code. Housing: Nylon. Terminals: Gold in select area. Code rotor: Stainless steel/electroformed nickel. Operating temperature: –40˚C to +85˚C.

| Cat. No. | Description | Termination | Net Price |
|---|---|---|---|
| **61S100-1-025** | 100 cycles, 0.125in. shaft | 2.5˝ cable with connector | **$71.70** |
| **61S100-2-025** | 100 cycles, 0.25in. shaft | 2.5˝ cable with connector | **74.83** |
| **61S128-1-025** | 128 cycles, 0.125in. shaft | 2.5˝ cable with connector | **71.70** |
| **61S128-2-025** | 128 cycles, 0.25in. shaft | 2.5˝ cable with connector | **74.83** |
| **61S128-2-025** | 128 cycles, 0.25in. shaft | 2.5˝ cable with connector | **74.83** |
| **61S64-1-025** | 64 cycles, 0.125in. shaft | 2.5˝ cable with connector | **71.70** |
| **61S64-2-025** | 64 cycles, 0.25in. shaft | 2.5˝ cable with connector | **74.83** |

## SERIES 62A OPTICAL ENCODERS

### LOW COST 1/2˝ PACKAGE

Long life. Economical size. Compatible with CMOS, TTL and HCMOC logic. Used to set Radio Frequency, Drill Depth, RPM, Menu Selection, Parameter Selection for Patient Monitoring Devices, etc. Operating voltage: 5.0 ±.250Vdc. Supply Current: 30 mA max. at 5.0 Vdc. Logic high: 3.8V min. (5.0 Vdc). Logic low: 0.8V max. (5.0 Vdc). Actuation life: 3,000,000 operations. Rotational life: 1,000,000 cycles of operation. Operating speed: 100 RPM maximum. Operating temperature range: –40˚C to 85˚C. Bushings: Zinc casting. Shaft: Zinc or aluminum. Shaft retaining ring: Stainless steel. Terminals: Brass, tin-plated. Mounting hardware: brass, nickel-plated nut and lockwasher. Switch housing: Thermoplastic Pushbutton dome: Stainless steel. Pushbutton contact: Brass, nickel-plated.

| Cat. No. | Description | Termination | Net Price |
|---|---|---|---|
| **ROTARY SWITCH** | | | |
| **62A11-01-020S** | 32 Position | 2˝ Stripped Cable, .050˝ centres | **$42.23** |
| **62A11-01-050S** | 32 Position | 5˝ Stripped Cable, .050˝ centres | **43.09** |
| **PUSHBUTTON SWITCH** | | | |
| **62A11-02-020S** | 32 Position | 2˝ Stripped Cable, .050˝ centres | **46.15** |
| **62A11-02-050S** | 32 Position | 5˝ Stripped Cable, .050˝ centres | **47.05** |

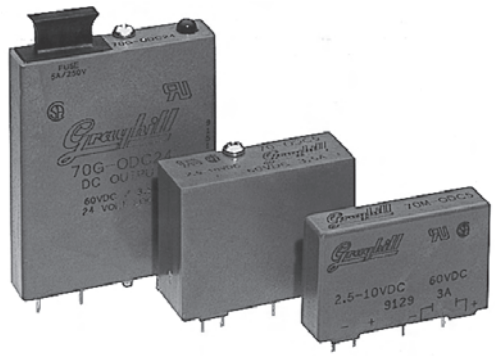
62C2211-02-020C
62C1511-02-020C
62C1515-02-020C

62C1111-01-P
62C1111-02-P

## SERIES 62C OPTICAL ENCODERS
### CONCENTRIC

Economical size. Combined functionality. Compatible with CMOS, TTL, and HCMOS logic. Used to set Radio Frequency, Drill Depth, RPM, Menu Selection, Parameter Selection for Patient Monitoring Devices, etc. Operating voltage: 5.0 ±.250 Vdc. Supply current: 50 mA max. at 5.0 Vdc. Logic high: 3.8V min. (5.0 Vdc). Logic low: 0.8V max. (5.0 Vdc). Actuation life: 3,000,000 operations. Rotation life: 1,000,000 cycles of operation. Operation speed: 100 RPM maximum. Operating temperature range: –40˚C to 85˚C. Bushing: Zinc casting. Shaft: aluminum. Shaft retaining ring: Stainless steel. Terminals: Brass, tin-plated. Mounting hardware: brass, nickel-plated nut and lockwasher. Switch housing: Thermoplastic. Pushbutton dome: Stainless steel. Pushbutton contacts: Brass, nickel-plated.

| Cat. No. | Description | Termination | Net Price |
|---|---|---|---|
| **OPTICAL ENCODER** | | | |
| **62C1111-01-P** | Deck A, 32 positions, Deck B, 32 positions | Switch pins | **$82.23** |
| **OPTICAL ENCODER WITH PUSHBUTTON SWITCH** | | | |
| **62C1111-02-P** | Deck A, 32 positions, Deck B, 32 positions | Switch pins | **86.05** |
| **62C2211-02-020C** | Deck A, 16 positions, Deck B, 32 positions | 2˝ cable and connector | **86.05** |
| **62C1511-02-020C** | Deck A, 24 positions, Deck B, 32 positions | 2˝ cable and connector | **86.05** |
| **62C1515-02-020C** | Deck A, 24 positions, Deck B, 24 positions | 2˝ cable and connector | **86.05** |




STANDARD, MINI, AND G5 PINOUT

## SERIES 70 DIGITAL INPUT/OUTPUT MODULES
### I/O MODULES

Provide an optically isolated interface between logic systems and external AC and DC power devices. UL recognized and CSA certified. G5 modules are CE approved. Logic compatible, all listed modules operate at 5 Vdc nominal (2.5 to 9.0 Vdc). SPST N.O. with industry standard pinouts, superior noise immunity, transient protection of 4000 V/microsecond, 4000 volts of isolation, and high blocking voltages of 400 volts (120 Vac) and 600 volts (240 Vac). G5 modules have built-in status LEDs and 5 × 20 mm glass fuses. Immune to mechanical shock and vibration. Operating temperature range of –40˚C to +100˚C. AC types have zero crossing switching. Meet IEEE 472–1974 and ANSI C37.90 transient withstanding tests, and Electrical Noise Immunity Test per NEMA ISC 2-230.

**Standard I/O Modules (part numbers begin 70–)** form, fit, function replacements for competitive product; output modules switch up to 3.5 Amps. Standard modules measure 1.7˝ L (43,18 mm), .6˝ W (15,24 mm), and 1.25˝ H (31,75 mm).

**Miniature I/O Modules (part numbers begin 70M–)** require only .68˝ sq. board area, and switch up to 3.0 Amps. Mini modules measure 1.7˝ L (43,18 mm), .4˝ W (10,16 mm), and 1.0˝ H (25,4 mm).

**G5 Modules (part numbers begin 70G–)** include a replaceable glass cartridge fuse in the output modules and a status LED indicator. These modules switch up to 3.5 Amps. G5 modules are 1.9˝ L (48,26 mm), .46˝ W (11,68 mm), and 2.5˝ H (63,5 mm).

**TERMINAL NUMBER AND CONNECTION**

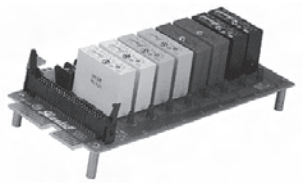
| Type | #5 | #4 | #3 | #2 | #1 |
|---|---|---|---|---|---|
| OAC | N/A | DC–IN | DC+In | AC Out | AC Out |
| ODC | N/A | DC–IN | DC+In | DC–Out | DC+Out |
| IAC | Ground | Output | +Vcc | AC In | AC In |
| IDC | Ground | Output | +Vcc | DC–In | DC+In |

Only output terminals have terminal #5.

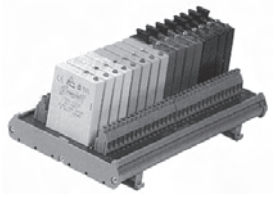
**I/O MODULES**

| Cat. No. | Description | Net Price |
|---|---|---|
| **LOAD VOLTAGE/OUTPUT MODULES** | | |
| **70-OAC5** | 120 Vac | **$11.03** |
| **70-OAC5A** | 240 Vac | **12.20** |
| **70G-0AC5** | 120 Vac | **12.78** |
| **70G-0AC5A** | 240 Vac | **13.90** |
| **70M-OAC5** | 120 Vac | **11.03** |
| **70M-OAC5A** | 240 Vac | **12.20** |
| **70G-ODC5** | 60 Vdc | **12.78** |
| **70G-ODC5A** | 200 Vdc | **20.34** |
| **70M-ODC5** | 60 Vdc | **11.03** |
| **70M-ODC5A** | 200 Vdc | **18.58** |
| **INPUT VOLTAGE/INPUT MODULES** | | |
| **70-IAC5** | 120 Vac | **11.03** |
| **70-IAC5A** | 240 Vac | **11.03** |
| **70G-IAC5** | 120 Vac | **11.62** |
| **70G-IAC5A** | 240 Vac | **11.62** |
| **70M-IAC5** | 120 Vac | **11.03** |
| **70M-IAC5A** | 240 Vac | **11.03** |
| **70-IDC5** | 5 Vdc | **11.03** |
| **70G-IDC5** | 5 Vdc | **11.62** |
| **70M-IDC5** | 5 Vdc | **11.03** |

Additional types available from stock; random crossing, normally closed,non-polarized DC input, 90-140 Vdc input, or 180-280 Vdc input.



8 CHANNEL RACK



16 CHANNEL RACK

24 CHANNEL RACK

## MODULE MOUNTING RACKS

Standard racks **type 70RCK** for standard modules; **types 70MRCK or 70MRCQ** for mini modules; **types 70GRCK, 70GRCQ and 70GRCM** for G5 modules. Racks accept input and output modules interchangeably. All racks have resident pull up resistors. Standard and mini racks have replaceable fuses and status indicating LEDs at each module location. Mini racks include hold down bars to retain modules. **No suffix** or **-EC suffix** denotes board edge connector. **-HS suffix** denotes 50 pin header connector for 50 pin ribbon connector with no strain relief. **-HL suffix** denotes 50 pin header connector for 50 pin ribbon connectors with strain relief or ProMux plug-in. All racks use negative true logic except **70RCK4R** which uses positive or negative true logic.

**Continued on next page....**