

Series 600 & 690

Optical Encoders

NEW



- Long life
- Low cost

Series 600 Light-Duty Encoder

Manually or motor operated rotary optical encoder that outputs two square waves at a maximum rate of 128 pulses in quadrature with other resolutions as low as 10 pulses available.

SERIES 600 FEATURES

- Long life-10 million revolutions minimum (contactless)
- Cost effective - elimination of A/D converters
- Stainless steel shafts and nickel-plated bushings in various lengths
- Stability- -40°C to $+65^{\circ}\text{C}$ operating temperature
- Variability-Cable and printed circuit terminations available

APPLICATIONS:

- Motion sensing and control • Motor control • Flow control
- Low-to-high input for test & measurement, medical and instrumentation • robotics • computer peripherals



- IC Detector
- High Temperature

Series 690 High-performance Encoder

Robust, compact, low profile package rotary optical encoder incorporating an integrated circuit detector for long life and high reliability. Encoders are two-channel quadrature output of 128 ppr as standard with other resolutions as low as 32 pulses available.

SERIES 690 FEATURES

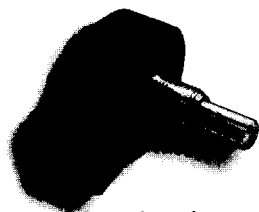
- Integrated circuit detector for long life and high reliability
- Stability: -40°C to $+85^{\circ}\text{C}$ operating temperature
- Robust, economical, compact optical encoder. Up to 128 pulses per revolution in 1" square package
- Sealed housing suitable for industrial motion feedback or panel mounted applications
- Bearing model for high operating life
- Two channel quadrature output, pin or cable

APPLICATIONS:

- Motion sensing and control • Motor control devices • Flow control devices • Input devices

ISO 9001
CERTIFIED

SPECIFICATIONS



600 Series



690 Series

Electrical

PARAMETER	MIN.	NOM	MAX.
VCC RANGE (V)	4.75	5	5.25
SUPPLY CURRENT (mA)			30
VOH (V)	2.4		
VOL (V)			.4
PULL-UP RESISTOR (Kohm)		10	
OUTPUT	Channel A leads Channel B by 90 deg electrically, CCW direction		

MIN.	NOM	MAX.
4.75	5	5.25
	30	50
3	4	
	.29	.7
7.5	10.5	13.5
Channel A leads Channel B by 90 deg electrically, CW direction		

Environmental

PARAMETER	MIN.	NOM.	MAX.
OPERATING TEMP (Deg C)	-40 deg		+65 deg
STORAGE TEMP (Deg C)	-55 deg		+110 deg
HUMIDITY:	85%RH @ 40 deg C, 240 hr		

MIN.	NOM.	MAX.
-40 deg		+85 deg
-55 deg		+105 deg
85%RH @ 40 deg C, 240 hr.		

Mechanical

VIBRATION: 10 to 2000Hz, 15G Mil Std, Method 204 Test Cond. C

SHOCK: 100G @ 6ms Mil Std. 202, Method 213 Test Cond. C

10 to 2000Hz, 15G Mil Std, Method 204 Test Cond. C

100G @ 6ms Mil Std. 202, Method 213 Test Cond. C

ROTATIONAL TORQUE:

Sleeve 1.5 oz. in.*

Ball bearing .25 oz. in. max.

*Low torque available

1.0 oz. in.

.25 oz. in.

OPERATING SPEED: 600/605-300 RPM

610/615-3000RPM

690-200RPM

692-3000RPM

ROTATIONAL LIFE: 10 mil rev.

SHAFT END PLAY: .005 max.

SHAFT RADIAL PLAY: .010 @ 1 in.

SHAFT AXIAL FORCE: 15 lbs. push/pull

TERMINAL STRENGTH: 2 lbs.

WEIGHT: .74 oz.

10 mil rev.

.005 max.

.010 @ .75 in.

50 lbs push, 25 lbs pull

3 lbs.

1.1 oz.

Terminals

B66: PC Terminals, horiz. mount

C24: PC: Terminals, vert. mount

CBL: 7.5 in. cable

CN1: 7.5 in. cable with connector

0: Straight pins, vertical mounting

4: Standard cable/connector

L: Custom cable

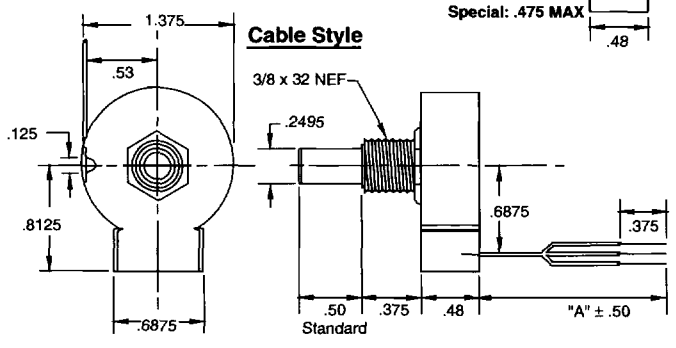
To order or for custom applications, call 800-874-1874



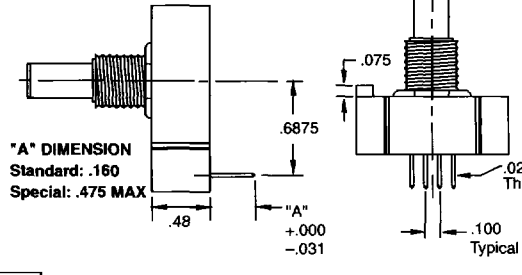
DIMENSIONS: 600 Series Light Duty Encoder

Styles

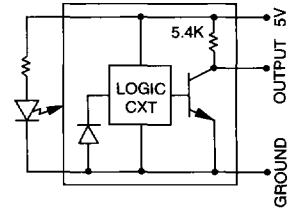
- 600 Series**
- 600 Sleeve Bearing
 - 605 Sleeve, single channel
 - 610 Ball bearing
 - 615 Ball bearing, single channel



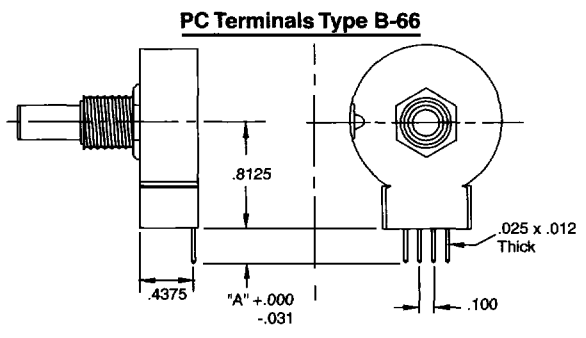
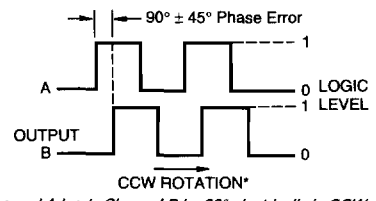
PC Terminals: Type C-24



Block Diagram One Output



Output Waveform



TERM #	FUNCTION
1	5VDC ± 5% @ 30ma MAX
2	"A" Out
3	Ground
4	"B" Out

"A" DIMENSIONS	
Standard	.180
Special	.400 MAX

Dimension Tolerances, Unless Otherwise Specified
 FRACTIONS = ± 1/64 (0.40mm) DECIMALS = ± .005 GRDS = ± .010 (0.25mm)

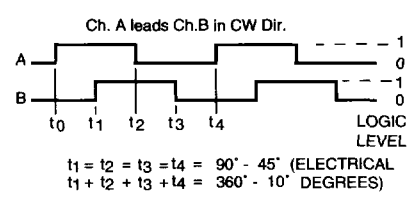
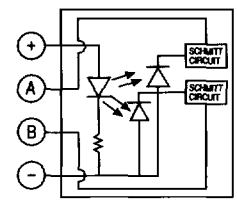
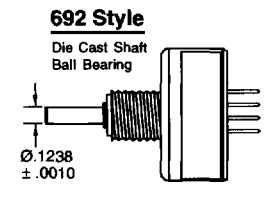
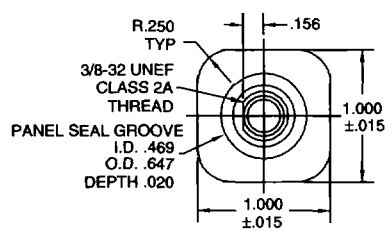
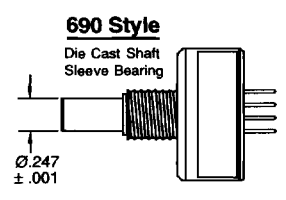
- NOTE:**
- "A" Cable Length Standard 7.50 ± .50
Other lengths available, specified by customer
 - "A" and "B" Outputs are TTL compatible on all models

COLOR	FUNCTION
Red	5VDC ± 5% @ 30ma MAX
Green	Ground
Yellow	"A" Out
Orange	"B" Out

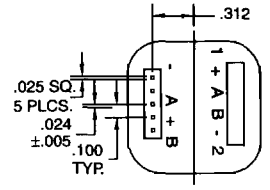
DIMENSIONS: 690 Series

Styles

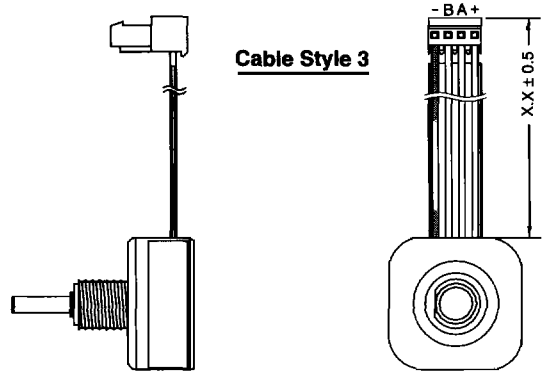
- 690 Series**
- 690 Sleeve Bearing
 - 692 Ball bearing



Pin Term. Style 2



Cable Style 3



All dimensions are inches. End view is the same for all styles. Other combinations are available, including, custom cables, mountings, value-add options and subassemblies. Models 600, 690 and other Clarostat potentiometers replace competitive models by Alps, Panasonic, Taiwan Alpha and other manufacturers.

To order or for custom applications, call 800-874-1874

800 874 1874 · Clarostat Sensors and Controls · El Paso, Texas 79936



SERIES 600: ORDERING INFORMATION

When ordering, indicate the desired options as shown in this example: 600EN-128-CBL

600	E	N	-	128	-	CBL																																																						
<p style="text-align: center; margin: 0;">SERIES</p> <p>600= Sleeve-bearing construction with two channel quadrature output</p> <p>605= Sleeve-bearing construction with one channel output</p> <p>610= Ball-bearing construction with two-channel quadrature output</p> <p>615= Ball-bearing construction with one-channel output</p>	<p style="margin: 0;">PRODUCT ID</p> <p>E=Encoder</p>	<p style="text-align: center; margin: 0;">SHAFT & BUSHING SIZE</p> <p>N= 1/4 in. (6.35mm) diameter by 3/4 in. (19.05mm) FMS long shaft. 3/8 in (9.53mm) diameter x 32 NEF 2A by 3/8 in. (9.53mm) long bushing (Series 600/605).</p> <p>M= 1/8 in. (3.18mm) diameter by 3/4 in. (19.05mm) FMS long shaft. 3/8 in (9.53mm) diameter x 32 NEF 2A by 3/8 in. (9.53mm) long bushing (Series 610/615)</p>		<p style="text-align: center; margin: 0;">PULSES PER RESOLUTION</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Pulses per Rev</th> <th>600</th> <th>605</th> <th>610</th> <th>615</th> </tr> </thead> <tbody> <tr><td>256</td><td>N/A</td><td>X</td><td>N/A</td><td>X</td></tr> <tr><td>180</td><td>N/A</td><td>X</td><td>N/A</td><td>X</td></tr> <tr><td>128</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>120</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>100</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>64</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>50</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>24</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>16</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>10</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> </tbody> </table> <p>X=Available N/A=Not available</p>	Pulses per Rev	600	605	610	615	256	N/A	X	N/A	X	180	N/A	X	N/A	X	128	X	X	X	X	120	X	X	X	X	100	X	X	X	X	64	X	X	X	X	50	X	X	X	X	24	X	X	X	X	16	X	X	X	X	10	X	X	X	X	<p style="text-align: center; margin: 0;">TERMINATION</p> <p>B66= PC Terminal Type B-66, Horizontal mounting</p> <p>C24= PC Terminal Type C-24, vertical mounting</p> <p>CBL= 7.5 in. (190.5mm) Long cable/lead</p> <p>CNI= 7.5 in. (190.5mm) Long cable/connector</p>
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24	X	X	X	X																																																								
16	X	X	X	X																																																								
10	X	X	X	X																																																								

SERIES 690: ORDERING INFORMATION

When ordering, indicate the desired options as shown in this example: 6900Q03200-00

690	0	Q	0 3 2	0	0	- 0 0						
<p style="text-align: center; margin: 0;">SERIES</p> <p>690 CE</p>	<p style="text-align: center; margin: 0;">SHAFT & BEARING STYLE</p> <p>0: 1/4"D shaft, sleeve bearing. 3/8"D bushing</p> <p>2: 1/8"D shaft, ball bearing 3/8"D bushing</p>	<p style="text-align: center; margin: 0;">OUTPUT STYLE</p> <p>Q = Quadrature (two channel)</p> <p>T = Tachometer (single channel)</p>	<p style="text-align: center; margin: 0;">RESOLUTION</p> <p>(Pulses Per Revolution)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><td>032</td><td>125</td></tr> <tr><td>064</td><td>128</td></tr> <tr><td>100</td><td></td></tr> </table>	032	125	064	128	100		<p style="text-align: center; margin: 0;">TERMINATION</p> <p>0: Straight Pins (see drawing)</p> <p>4: Standard 4" cable and connector</p> <p>L: Custom Cable Length Example: 8=8' cable length</p>	<p style="text-align: center; margin: 0;">PIN-OUT STYLE</p> <p>2: - open A + B (Terminal pin only)</p> <p>3: -BA+ (Side cable only)</p>	
032	125											
064	128											
100												

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