

**ELECTRICAL SPECIFICATIONS:**

<b>POWER SUPPLY VOLTAGE:</b>	+ 4.5 VDC minimum to + 5.5 VDC maximum with suffix B = 0 + 8.0 VDC minimum to + 15.0 VDC maximum with suffix B = 1 + 8.0 VDC minimum to + 30.0 VDC maximum with suffix B = 2
------------------------------	--

<b>POWER SUPPLY CURRENT:</b>	150 ma. maximum for all models except where suffix C = 9 200 ma. maximum for models with suffix C = 9
------------------------------	--

<b>OUTPUT SIGNAL, HIGH LEVEL:</b>	2.4 volts dc minimum at 40 uamp. with suffix C = 1 & 2, 5 volt power. + 13.5 volts dc minimum at 10 ma. with suffix C = 7 & 8, 15 volt power. + 2.5 volts dc minimum at 40 ma. with suffix C = 9, 5 volt power.
Open collector outputs, suffix C = 3,4,5 & 6 depend on the power supply, pullup resistors and the external load.	

<b>OUTPUT SIGNAL, LOW LEVEL:</b>	+ .4 volts dc maximum at 16 ma. with suffix C = 1 & 2, 5 volt power. +1.5 volts dc maximum at 40 ma. with suffix C = 7 & 8, 15 volt power. .5 volt maximum at 40 ma. with suffix C = 9, 5 volt power. .7 volts dc maximum at 40 ma. with suffix C = 3, 4, 5 & 6, all power supply voltages from 5 to 30.
----------------------------------	---

<b>OUTPUT SIGNAL, RISE TIME:</b>	200 nsec. maximum with 25 pf. and 11K ohm pullup resistor.
----------------------------------	--

<b>OUTPUT SIGNAL, FALL TIME:</b>	50 nsec. Maximum with 25 pf. and 11K ohm pullup resistor.
----------------------------------	---

<b>OUTPUT SIGNAL, LOAD CAPACITANCE:</b>	100 pf. maximum with 3.3K ohm pullup resistor.
---	--

<b>OUTPUT SIGNAL, COUNT FREQUENCY:</b>	0 to 100 KHz., maximum.
--	-------------------------

<b>OUTPUT SIGNAL DIRECTION LOGIC:</b>	Channel A will lead channel B for clockwise rotation of the input drive shaft.
---------------------------------------	--

**ELECTRICAL SPECIFICATIONS:**

<b>INPUT DRIVE SHAFT LOAD</b>	Axial = 50 lbs., maximum. Radial = 40 lbs., maximum at the end of the shaft.
-------------------------------	--

<b>INPUT DRIVE SHAFT CONTINUOUS SPEED:</b>	5000 revolutions per minute or 100 KHz. count rate.
--	---

<b>INPUT DRIVE SHAFT SLEWING SPEED:</b>	7000 revolutions per minute maximum.
---	--------------------------------------

<b>SHAFT BEARING TYPE:</b>	ABEC class 1 or ABEC class 5, double sealed, precision ball bearings, lubricated with grease per MIL-G-23827A.
----------------------------	--

<b>SHAFT BEARING LIFE:</b>	2 X 10 <sup>8</sup> revolutions, minimum at rated input drive shaft load. 5 X 10 <sup>10</sup> revolutions, minimum at 10% of the rated input drive shaft load.
----------------------------	---

<b>INPUT DRIVE SHAFT MATERIAL:</b>	Stainless steel, type 303, 5/16 inch diameter, standard.
------------------------------------	--

<b>ENCLOSURE MATERIAL:</b>	Cast aluminum, type 356, with grey enamel finish, meets NEMA type 4, 12 & 13.
----------------------------	---

<b>EXTERNAL CONNECTIONS:</b>	1/2 conduit or MS circular (6 or 10 pin) or terminal block connectors.
------------------------------	--

<b>OPERATING TEMPERATURE RANGE:</b>	-40 degrees C. to +100 degrees C.
-------------------------------------	-----------------------------------

**GENERAL DESCRIPTION:**

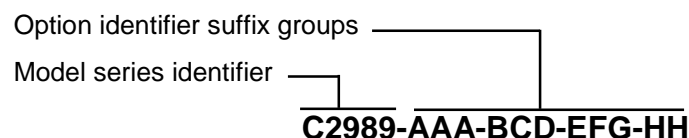
This series of heavy duty, incremental shaft encoders are general purpose devices that are used to provide digital position and velocity information to a process control system when they are connected to a rotating shaft on the user's equipment.

Designed to operate in demanding industrial environments, these units feature a cast aluminum enclosure, removable cover with oil resistant gasket and a stainless steel drive shaft supported by double sealed ball bearings. The encoder is protected from dust, dirt, water and oil and will meet NEMA type 4, 12 and 13 specifications when properly installed.

The encoder can be coupled to a motor shaft using the industry standard 5PY hardware. The solid state light emitting diodes are rated for a 100,000 hour life. The two signal output channels are arranged in quadrature and will operate up to 100Khz. Models up to 500 ppr can be supplied with a third channel index pulse.

A wide selection of code wheels enables the shaft encoder to provide up to 1024 pulses per revolution. Standard outputs include TTL, CMOS, Open collector and for extremely noisy applications a RS422 compatible line driver. The power supply can range from 5 to 30 volts DC. User connections are made to wire leads, a barrier type terminal block or MS type circular connector.

**PART NUMBERING SYSTEM:**



PART NUMBER SUFFIX GROUP EXPLANATION	
SUFFIX	DESCRIPTION
AAA	Code wheel pulses per revolution
B	Power supply voltage
C	Output signal type
D	Maximum output voltage
E	Index pulse status
F	External wire connection type
G	Mounting style
HH	Factory installed option identifier

Parts shipped from the factory will have the correct alphanumeric option identifier in place of the suffix letters indicated in the table above.

**ORDERING INFORMATION:**

Refer to the C2984 model series selection sheet for a complete listing of the currently available models.

**DATA SHEET  
FOR  
DATATRAN  
C2984  
INCREMENTAL  
SHAFT ENCODER  
  
(PY FLANGE MOUNT)**

FOR TECHNICAL ASSISTANCE CONTACT  
CONIC SYSTEMS, INC.  
11 REBEL LANE, PORT JERVIS, NY 12771  
TEL: (845) 856-4313 FAX (845) 858-2824  
www.conicsystems.com

**APPLICATION INFORMATION:**

**CODE WHEEL PULSES PER REVOLUTION:**

100 PPR with suffix AAA = 100	200 PPR with suffix AAA = 200	256 PPR with suffix AAA = 256
360 PPR with suffix AAA = 360	400 PPR with suffix AAA = 400	500 PPR with suffix AAA = 500
512 PPR with suffix AAA = 512	1000 PPR with suffix AAA = 101	1024 PPR with suffix AAA = 102

**INDEX PULSE AVAILABILITY:**

360 PPR with suffix AAA = 360	500 PPR with suffix AAA = 500	512 PPR with suffix AAA = 512
-------------------------------	-------------------------------	-------------------------------

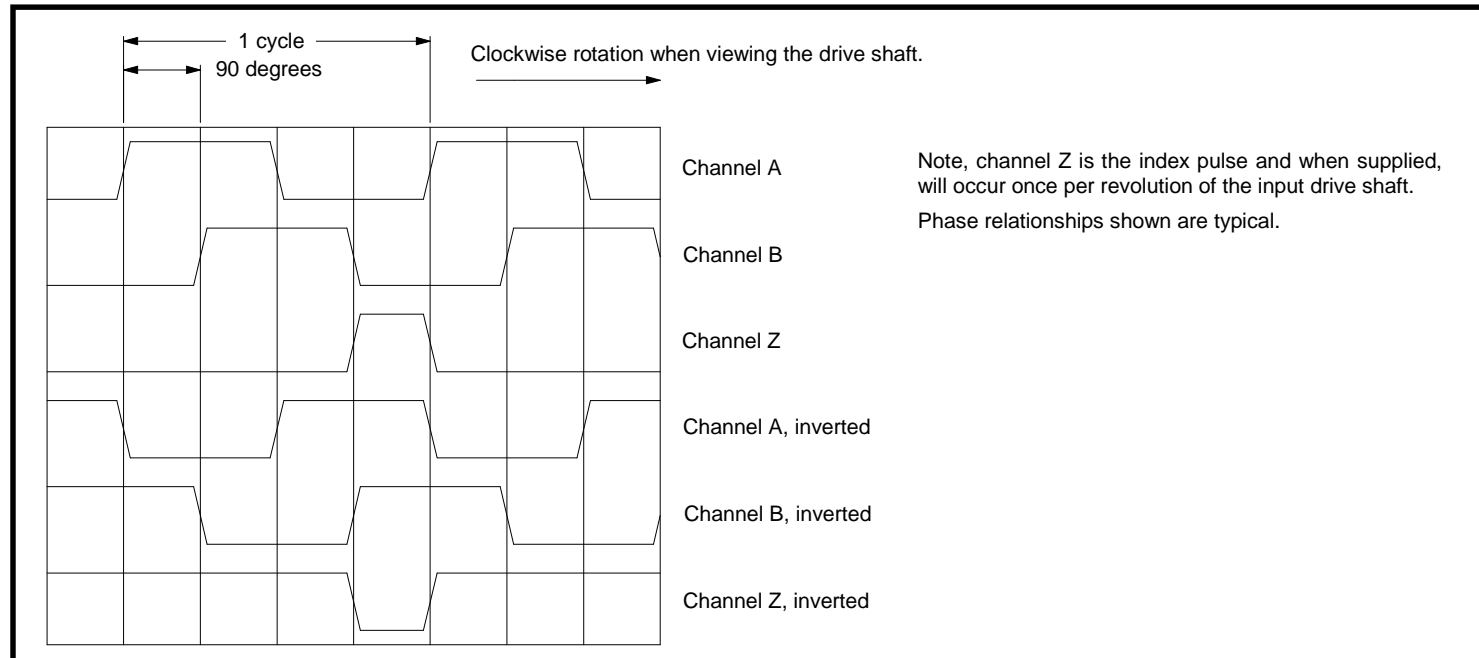
The code wheels listed above can be provided with the index pulse, suffix E = 1.

**INTERNAL PULLUP RESISTOR VALUES:**

Suffix B = 0, 5 volt power supply max. = 3.3K.	Internal with models that have suffix C = 4 or 6.
Suffix B = 2, 30 volt power supply max. = 6.8K.	Suffix B = 1, 15 volt power supply max. = 4.7K

The resistor values listed above should be installed in the users equipment with suffix C = 3 or 5.

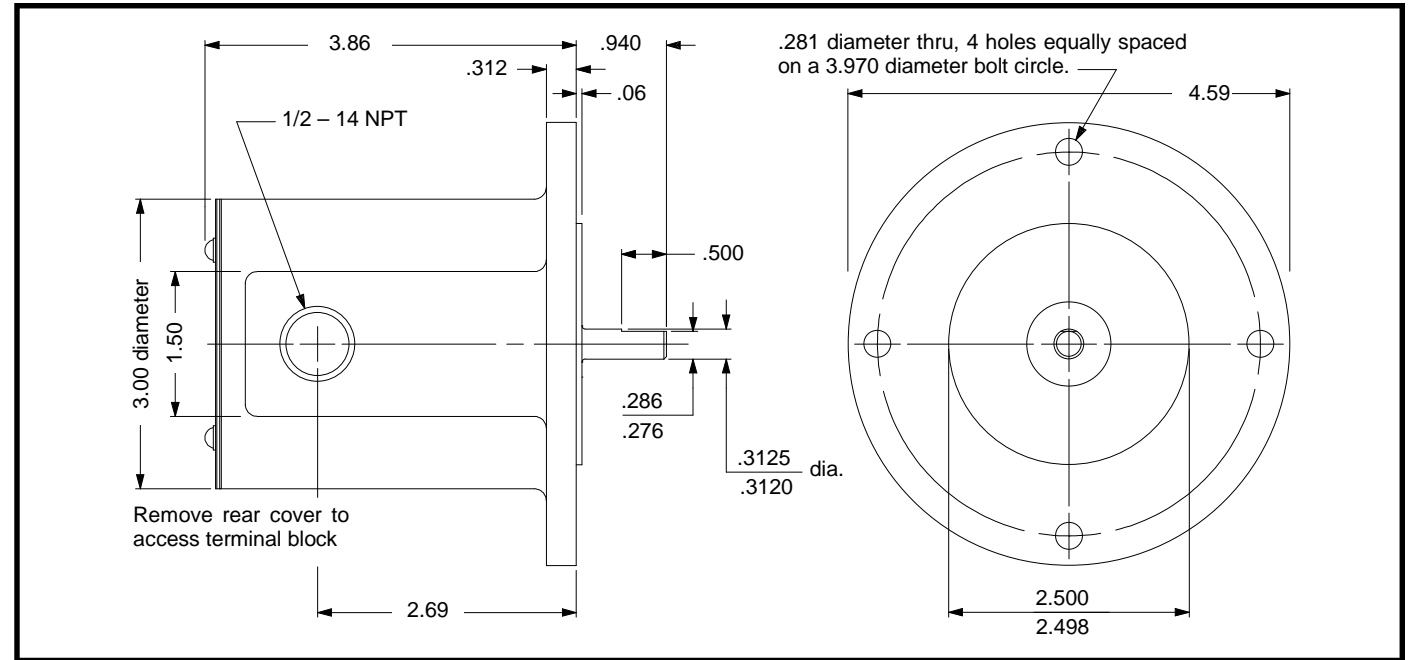
**OUTPUT WAVEFORMS:**



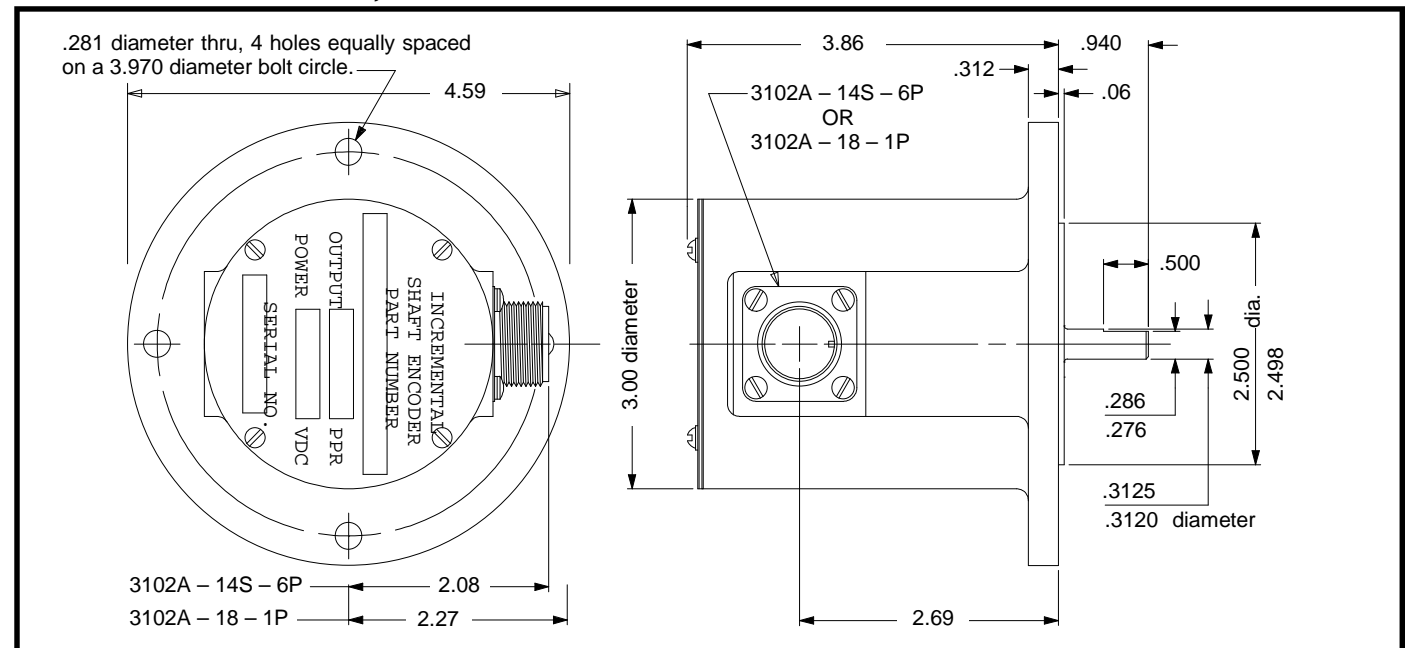
**EXTERNAL ELECTRICAL CONNECTIONS:**

Function	Wire lead color	10 Pin connector	6 Pin connector	Terminal block
Power	Red	D	B	1
Common	White	F	A	5
Case ground	Green	G	F	—
Channel A	Blue	A	E	3
Channel B	Yellow	B	D	2
Channel Z	Orange	C	C	4
Channel A, inv.	Purple	H	—	—
Channel B, inv.	Black	I	—	—
Channel Z, inv.	Brown	J	—	—

**OUTLINE DIMENSIONS, WITH CONDUIT CONNECTIONS::**



**OUTLINE DIMENSIONS, WITH 6 OR 10 PIN CONNECTOR:**



**APPLICATION NOTES:**

**EXTERNAL WIRE CONNECTIONS:** All user connections to the encoder should be made with twisted and shielded cable. This cable should be stranded copper with a foil shield and thermoplastic (PVC) insulation. It should be rated for a minimum of 150 volts and 80 degree C. The minimum wire size should not be less than number 22 AWG.

The connections to the encoder should be located in their own signal conduit. In the event that this conduit must cross non-signal conduits or raceways it should do so at an angle between 45 and 90 degrees. The shield should be exposed and connected at the user's equipment only.

**ENCODER CASE GROUND CONNECTION:** This is a safety ground connection and should be connected directly to the plant earth ground for maximum immunity to electrical noise and operator safety. This connection is not to be connected to the shield. The shield connection is normally connected to the system common (0 volt) potential. This potential may or may not be at earth ground potential. Should the case be connected to the system common potential, differences between the case and the system common point may cause extremely high currents to circulate between the two potentials.