MODEL 771 – INCREMENTAL ENCODER

Ø9.0"

FEATURES

Large Bore Size to 1.875" or 43 mm
Fits NEMA Size 182TC Thru 256TC Motor Faces (8.5" AK)
Incorporates Opto-ASIC Technology
Resolutions to 4096 CPR

The Model 771 C-Face encoder is a rugged, high resolution encoder designed to mount directly on NEMA C-Face motors. Both sides of the encoder are C-Face mounts, allowing additional C-Face devices to be easily mounted. Many competitive C-Face units are kit type encoders, but the Model 771 contains precision bearings and an internal flex mount that virtually eliminates encoder failures and inaccuracies induced by motor shaft runout or axial endplay. The advanced Opto-ASIC design provides superior noise immunity necessary for many industrial applications. This encoder is ideal for applications using induction motors and flux vector control. A Thru-Bore design allows fast and simple mounting of the encoder directly to the accessory shaft or drive shaft of a motor using a NEMA standard motor face (sizes 182TC - 256TC). The tough, all metal housing resists the vibration and hazards of an industrial environment.

COMMON APPLICATIONS

Motor Feedback, Velocity & Position Control, Servo Control Systems, Assembly & Specialty Machines, Elevator Controls

MODEL 771 ORDERING GUIDE

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

771	–	A	–	H	–	1024	–	Q	–	OC	–	A	–	Y	–	N	–	N

MODEL
771 8.5" NEMA "AK" Dimension

OPERATING TEMPERATURE
S 0° to 70° C
H 0° to 100° C

CYCLES PER REVOLUTION
1 - 4096
See *CPR Options* below for available resolutions.
Price adder for CPR >1024

OUTPUT TYPE
5 - 28V In/Out[3]
OC Open Collector
PU Pull-Up Resistor
PP Push-Pull
HV Line Driver[4]

C-FACE GASKET KIT OPTION[1]
N No
Y Yes

MATING CONNECTOR
N No Connector
Y Yes

HOUSING STYLE
A Cover completely encloses motor shaft and eliminates access to motor shaft; IP65 rated.
B Thru-Bore housing version with IP50 dust seal[1]

NUMBER OF CHANNELS[2]
Channel A Leads B
Q Quadrature A & B
R Quadrature A & B with Index
Channel B Leads A
K Reverse Quadrature A & B
D Reverse Quadrature A & B with Index
See **http://www.encoder.com/literature/index-phasing.pdf** for additional options, and waveforms.

BORE SIZE
T 5/8", 0.625"
V 7/8", 0.875"
W 1", 1.000"
A 1-1/8", 1.125"
K 1-1/4", 1.250"
B 1-3/8", 1.375"
C 1-1/2", 1.500"
D 1-5/8", 1.625"
F 1-3/4", 1.750"
E 1-7/8", 1.875"
H 28 mm
Q 30 mm
R 32 mm
L 35 mm
I 38 mm
J 40 mm
M 42 mm
N 43 mm

CONNECTOR TYPE[5]
P Gland Nut with 24" cable[6]
B Terminal Strip in Conduit Box
X 10-pin MS on Conduit Box
Y 7-pin MS on Conduit Box[4]
J 5-pin M12 (12 mm) on Conduit Box[4]
K 8-pin M12 (12 mm) on Conduit Box
L 10-pin Industrial Clamp

MODEL 771 CPR OPTIONS

0060	0100	0120	0240	0250	0256	0500
0512	1000	1024	2048	2500	4096	

Contact Customer Service for other disk resolutions; not all disk resolutions available with all output types

NOTES:

1. Thru-Bore version may be IP65 sealed if mounted between two C-Face devices with optional gasket kit. Select 'Yes' under C-Face Gasket Kit Option.
2. Contact Customer Service for index gating options.
3. 5 to 24 VDC max for high temperature option.
4. Line Driver Outputs not available with 5-pin M12 connector. Available with 7-pin MS connector only without Index Z.
5. For mating connectors, cables, and cordsets see **Accessories** at encoder.com.
   For Connector Pin Configuration Diagrams, see Technical Information or see **Connector Pin Configuration Diagrams** at encoder.com.
6. For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: P/6 = 6 feet of cable.

MODEL 771 SPECIFICATIONS

Electrical

Input Voltage..... 4.75 to 28 VDC max for temperatures up to 70° C
4.75 to 24 VDC for temperatures between 70° C to 100° C

Input Current ..... 100 mA max with no output load

Input Ripple..... 100 mV peak-to-peak at 0 to 100 kHz

Output Format..... Incremental – Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the mounting face. See *Waveform Diagrams*.

Output Types..... Open Collector – 100 mA max per channel
Pull-Up – Open Collector with 2.2K ohm internal resistor, 100 mA max per channel
Push-Pull – 20 mA max per channe
Line Driver – 20 mA max per channel (Meets RS 422 at 5 VDC supply)

Index..... Once per revolution.
0001 to 0474 CPR: Ungated
0475 to 4096 CPR: Gated to output A
See *Waveform Diagrams*.

Max Frequency ..... 200 kHz

Electrical Protection .. Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.

Noise Immunity..... Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DDENV 50141; DDENV 50204; BS EN55022 (with European compliance option); BS EN61000-6-2; BS EN50081-2

Quadrature..... 67.5° electrical or better is typical,
Edge Separation 54° electrical minimum at temperatures > 99° C

Rise Time..... Less than 1 microsecond

Mechanical

Max Shaft Speed..... 3500 RPM. Higher shaft speeds may be achievable, contact Customer Service. 6000 RPM for 1.125", 1.250", 1.375", 28 mm, 30 mm, 32 mm bore diameter

User Shaft Tolerances
Radial Runout ..... 0.005"
Axial Endplay..... ±0.1"

Moment of Inertia ... 3.3 x 10^{-3} oz-in-sec^2 typical

Housing ..... All metal construction

Weight..... 7.0 lb typical

Environmental

Storage Temp ..... -25° to 100° C

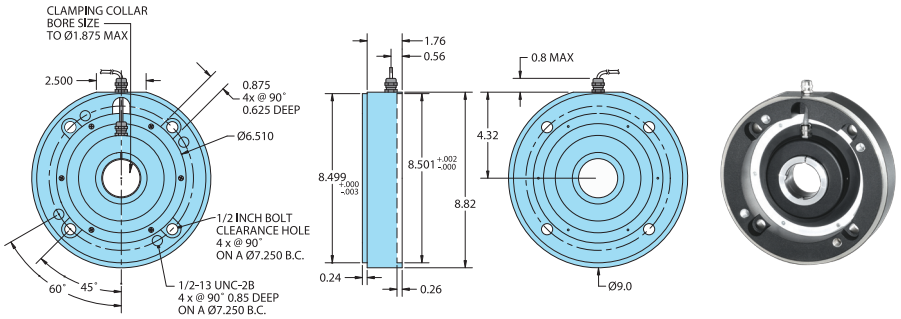
Humidity..... 98% RH non-condensing

Vibration..... 10 g @ 58 to 500 Hz

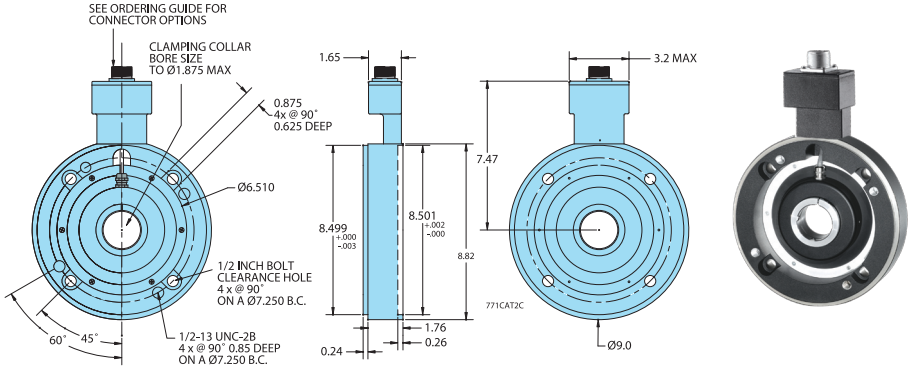
Shock..... 50 g @ 11 ms duration

Sealing ..... IP65 for Option A housing style with gasket kit; IP50 for Option B housing style

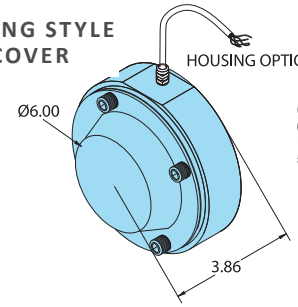
MODEL 771 WITH GLAND NUT CABLE (P)



MODEL 771 WITH CONDUIT BOX (B, X, Y, J, K)



OPTIONAL HOUSING STYLE (A) PROTECTIVE COVER

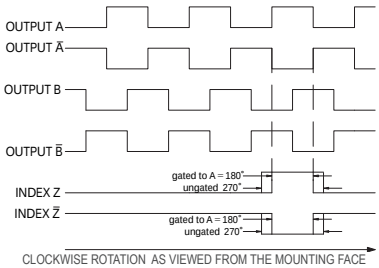


CONNECTOR TYPE	HEIGHT
6- OR 7-PIN MSW	0.67"
10-PIN MS	0.90"
5- OR 8-PIN M12	0.50"

All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified.

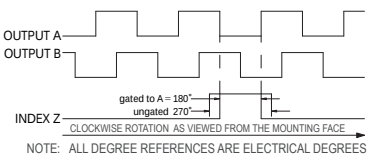
WAVEFORM DIAGRAMS

Line Driver and Push-Pull



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY SIGNALS Ā, B̄, Z̄ FOR HV OUTPUT ONLY.

Open Collector and Pull-Up



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES INDEX IS POSITIVE GOING

WIRING TABLE

For EPC-supplied mating cables, refer to wiring table provided with cable. Trim back and insulate unused wires.

Function	Gland Cable† Wire Color	5-pin M12++ PU, PP, OC	8-pin M12++	10-pin MS	7-pin MS HV	7-pin MS PU, PP, OC	Term Block	10-pin Indust. Clamp
Com	Black	3	7	F	F	F	2	1
+VDC	Red	1	2	D	D	D	1	6
A	White	4	1	A	A	A	3	3
A'	Brown	--	3	H	C	--	4	8
B	Blue	2	4	B	B	B	5	2
B'	Violet	--	5	I	E	--	6	7
Z	Orange	5	6	C	--	C	7	4
Z'	Yellow	--	8	J	--	--	8	9
Case	--	--	--	G**	G**	G**	9+	10+
Shield	Bare*	--	--	--	--	--	--	--

*CE Option: Cable shield (bare wire) is connected to internal Case.
**CE Option: Pin G is connected to Case. Non-CE Option: Pin G has No Connection.
+CE Option: Pins 9 and 10 are connected to Case. Non CE Option: Pins 9 and 10 have No Connection.
++CE Option: Use cable cordset with shield connected to M12 connector coupling nut.
†Standard cable is 24 AWG conductors with foil and braid shield.