

# IM-15 MOTORS W/OPTICAL ENCODER

DC Ceramic Permanent Magnet Motors

E-2420



general design specifications: Designed to accept HP HEDS-5500 series dual channel encoders

power rating: To .02 hp (14.9 W)

voltage: 12 or 24 VDC

inertia: See table, opposite page

electrical time constant: 1.0 millisecond max

mechanical time constant: 25.0 milliseconds max

typical no load torque: 0.6 oz. in.

shaft: Precision-ground and hardened stainless steel. Options: length, flats, pinions, gears. Shaft material may change depending upon options selected

magnets: High energy ceramic to provide greater torque and high-pulse current without demagnetizing

ball bearings: Pre-loaded to withstand high side load and low end play

cover: Steel housing, zinc plate

end bells: Die-cast zinc

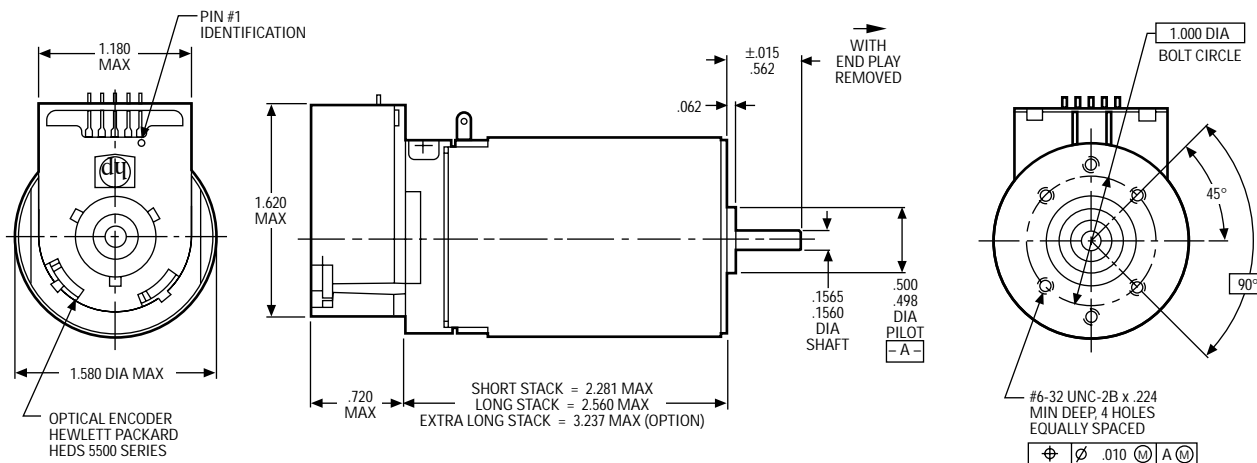
winding insulation rating: 180°C

winding temperature rise: \*\*See table, opposite page

options available:

- Planetary and spur gear trains
- EMI suppression
- Leads
- Extra long stack

## Dimensions



ROTATION (VIEWED FROM SHAFT END)

CW - POSITIVE VOLTAGE TO (+), NEGATIVE VOLTAGE TO (-)

CCW - REVERSE POLARITY

**NOTE:** Consult factory prior to preparing spec control prints. Dimensions are for reference only

## Standard Part Numbers and Motor Data

VOLTAGE (VDC)	SPEED ±10% NO LOAD (rpm)	CURRENT NO LOAD (max amps)	RATED TORQUE (oz. in.)	CURRENT AT RATED TORQUE (max amps)	INERTIA (oz. in. sec <sup>2</sup> x 10 <sup>-4</sup> ) REF.	TEMP** RISE (°C/watt)	TORQUE CONSTANT (oz. in./amp)	RESISTANCE ±15% (ohms) REF.	MOTOR PART NUMBER*
<b>Short Stack — Motors</b>									
12	5,200	.250	4.0	2.00	4.8	8.5	2.95	2.25	403A251-2
24	5,200	.125	4.0	1.00	4.8	8.5	6.00	9.00	403A251-3
<b>Long Stack — Motors</b>									
12	5,200	.300	5.0	2.30	6.0	7.0	3.00	2.00	403A252-2
24	5,200	.150	5.0	1.20	6.0	7.0	6.10	6.60	403A252-3

\*Part number for Motor/Encoder Assembly will be assigned at time of order

\*\*Winding temperature rise measured when mounted to 8.00" x 8.00" x .25" aluminum plate, multiply by 1.4 when mounted to heat insulator

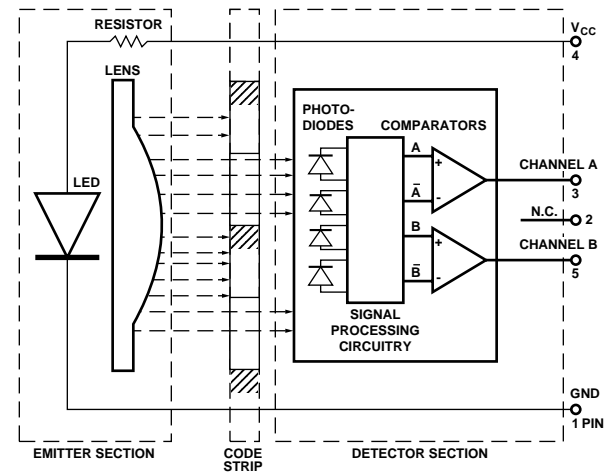
## Encoder Resolution Selection Data

A = 500 CPR+	E = 200 CPR	H = 400 CPR
C = 100 CPR	F = 256 CPR	I = 512 CPR
D = 192 CPR	G = 360 CPR	K = 96 CPR

+ CPR = cycles per revolution

**NOTE:** Higher resolutions, index and line driver options are available. Contact factory for details.

## Block Diagrams



## Output Waveforms

