

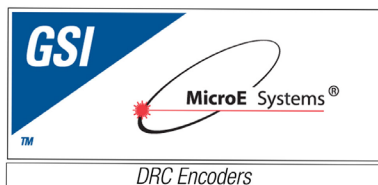
MODEL HT30

Incremental Optical Rotary Encoder



- Modular rotary encoder will accept up to .75 inch dia. shafts
- Up to 5,000 line disc with internal 5X cycle interpolation
- Small compact size
- Unique shaft mount with self centering hub
- Frequency response up to 100 KHz all channels

The Model HT30 is a high speed kit style modular rotary encoder. The units unique self centering tapered hub, along with an internal gapping plug, makes the installation of the HT30 very simple. The unit is available with disc resolutions up to 5,000 lines and internal cycle interpolation of 5X to generate up to 100,000 counts per revolution. The large inside diameter bearing used on the HT30 will accept up to 3/4 inch diameter shafts. The HT30 series is ideal for applications which require a high resolution modular style optical encoder.



HT30 SPECIFICATIONS

ELECTRICAL

Resolution range:	Up to 5,000 cycles per shaft revolution.
Interpolation factors:	1X, 4X, or 5X for up to 100,000 counts with user's quadrature detection.
Light source:	Gallium aluminum arsenide L.E.D. rated @ 100,000 Hrs. MTBF (mfg's spec).
Light sensor:	Silicon photo voltaic cells.
Excitation voltage:	+5 VDC, +12 VDC and +15 VDC \pm 5%.
Max. current draw:	245ma. Without interpolation, 275ma. with interpolation.
Output format:	Two count channels (A & B) in phase quadrature with an optional ZR output.
Quadrature:	90° \pm 22.5° (line driver 1x); 90° \pm 45° (interpolation); at 10KHz output frequency.
Symmetry:	180° \pm 18° (at 10 KHz output frequency).
Rise and fall time:	1 microsecond max. into 1,000pf load capacitance.
Frequency response:	DC to 100 KHz for 1x units; DC to 50 KHz for 4x and 5x units. (250 KHz max. output frequency after 5x interpolation).
Phase sense:	Channel A leads Channel B for clockwise rotation of the shaft, as viewed from the cover side of an installed unit.
Zero reference:	1/4 , 1/2 , and full count channel cycle wide, once per revolution (see table).
ZR alignment:	1/4 cycle ZR aligns with both A & B high. 1/2 cycle ZR aligns with B- high. Full cycle ZR aligns between 90° & 180° of channel A.
Output spec:	Differential, TTL compatible RS422 line driver signals.

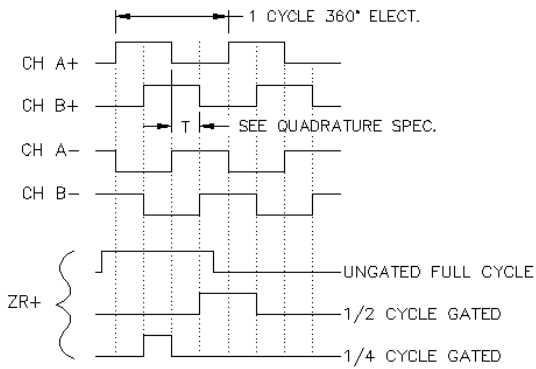
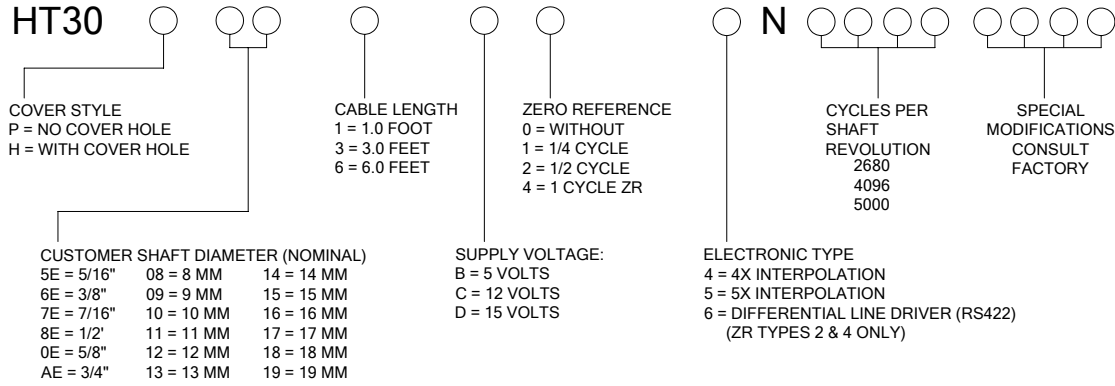
MECHANICAL

Shaft angular acceleration:	10 ⁵ Radian / sec ² (maximum).
Maximum shaft run-out:	.001 inch radial max., .0001" TIR axial max to achieve +/- 25 arc sec accuracy.
Shaft perpendicularity to	
Mounting surface:	.005 inch per inch max.
Moment of inertia:	4.0 x 10 to the -4 oz.-in.-sec squared.
Max. operating speed:	Max. operating frequency response based on electronics type.
Angular acceleration:	100,000 radians per sec. squared max.
Customer shaft O.D. tolerance:	Nominal -.0002" (.005mm) to -.0007" (.018mm).
Cable description:	Individually shielded twisted pairs plus an overall shield. Cables contain 11 conductors.
Housing material:	Aluminum.
Shaft material:	Aluminum.

ENVIRONMENTAL

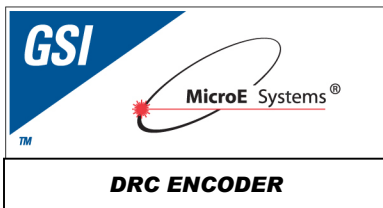
Operating temperature:	0°C to +70°C
Storage temperature range:	-25°C TO +90°C
Shock:	50 g FOR 11 millisecond duration.
Vibration:	20 Hz to 2000 Hz @ 5 G.
Humidity:	To 98% R.H. (non-condensing).

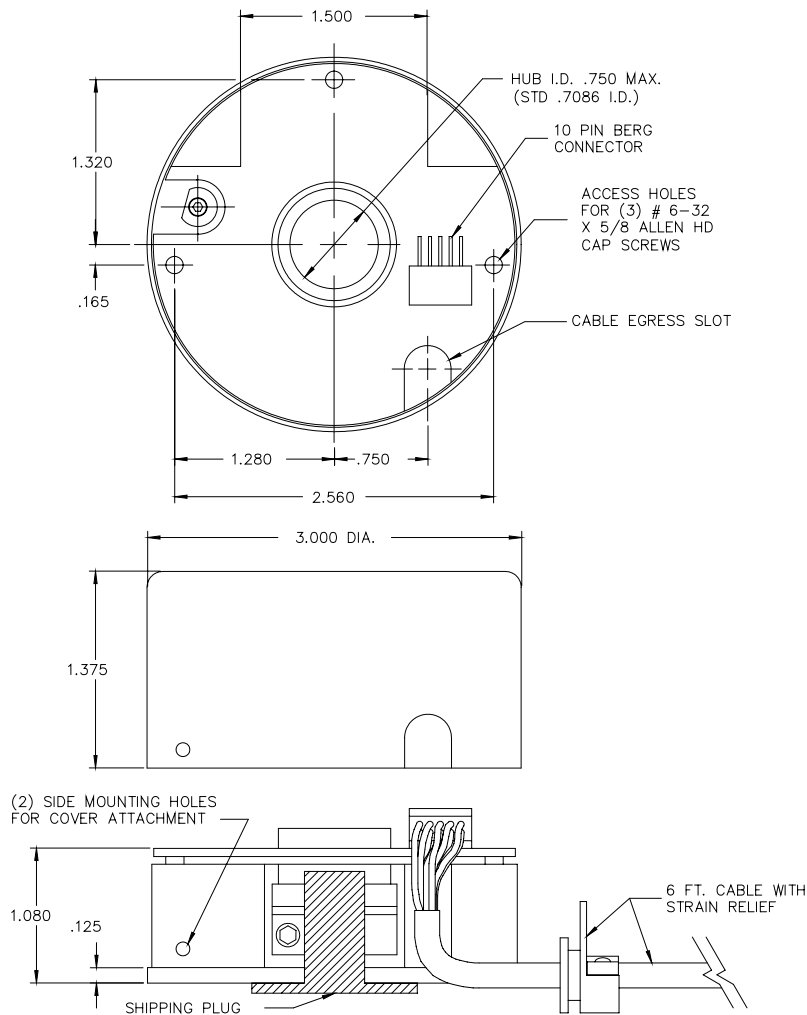
HT30



ZR- IS AVAILABLE, CONSULT FACTORY.

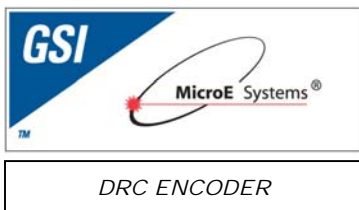
Electrical Connections	
FUNCTION	WIRE COLOR
CHANNEL A+	ORANGE
CHANNEL A-	GREEN
CHANNEL B+	YELLOW
CHANNEL B-	BLUE
CHANNEL ZR+	BROWN
CHANNEL ZR-	GRAY
GROUND	BLACK
VDC	RED
CASE GROUND	VIOLET
DRIAN	BARE WIRE





INSTALLATION PROCEDURE:

1. REMOVE SHIPPING PLUG FROM THE HUB BORE BY LOOSENING THE HUB CLAMPING SCREW AND SLIDING THE PLUG OUT.
2. GUIDE THE ENCODER ONTO THE SHAFT UNTIL THE ENCODER BASE IS RESTING ON THE MOTOR MOUNTING SURFACE. THE HUB AND DISC ASSEMBLY SHOULD SLIDE FREELY ON THE SHAFT, IF NOT DO NOT FORCE. CHECK THE SHAFT FOR INTERFERENCE SUCH AS BURRS, GOUGES, RUST, ETC.
3. PUSH DOWN ON THE HUB AND DISC ASSEMBLY UNTIL IT BOTTOMS ON THE BASE. THIS WILL CENTER THE BASE ASSEMBLY TO THE HUB. WHILE KEEPING DOWNWARD PRESSURE ON THE HUB ROTATE THE BASE TO ALIGN THE MOUNTING HOLES TO THE MOTOR MOUNT, INSERT APPROPRIATE HARDWARE #6-32 X 5/8 ALLEN HEAD CAP SCREWS. TIGHTEN IN PLACE.
4. INSERT AN ALLEN WRENCH INTO HUB CLAMP SCREW. SLIDE THE HUB AND DISC ASSEMBLY UP UNTILL THE DISC COMES IN CONTACT WITH THE PLUG. TIGHTEN THE HUB SCREW AND RELEASE THE GAPPING PLUG, BY LOOSENING THE SCREW IN THE CENTER OF THE PLUG (THE PLUG IS SPRING LOADED TO GO UP TO GET OUT OF THE WAY). ENCODER IS NOW ELECTRICALLY PREALIGNED AND OPERATIONAL, IF NOT, REPEAT GAPPING PROCEDURE OR CHECK GAP WITH A .004" SHIM STOCK.
5. POSITION COVER IN PLACE AND SECURE WITH TWO #4-40 SCREWS. THE UNIT IS NOW PHASED, GAPPED AND READY TO OPERATE.



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