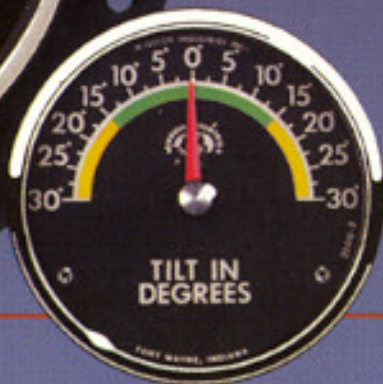
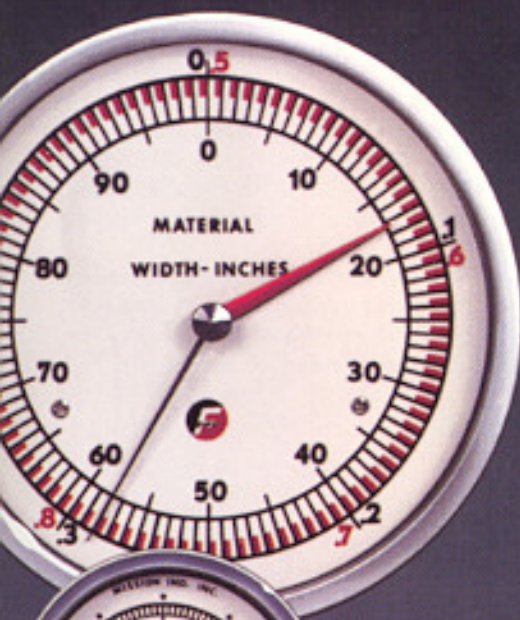


MECHANICAL POSITION INDICATORS



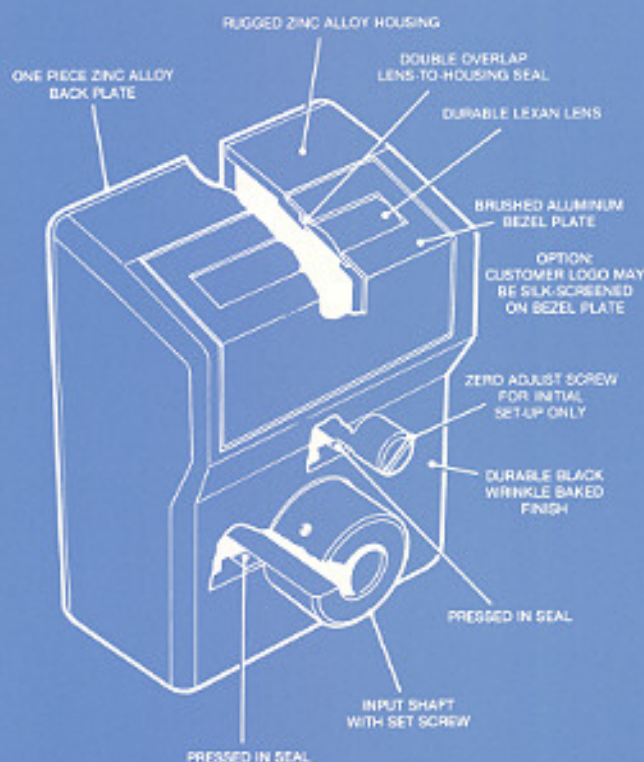
ANALOG Pages 4 and 5

*Accurate, effortless performance...
the key to Mission Industries
Position Indicators*

DIGITAL Pages 2 and 3



DIGITAL POSITION INDICATORS



CONSTRUCTION

- Zinc-aluminum ZA-12 alloy cast housing and base plate frame.
- Hobbed brass gears to insure a positive, long lasting drive train.
- All gears and bearings Molydisulfide lubricated.
- LEXAN reading lens.
- Aluminum bezel
- Reading lens physically secured in housing recess.
- Housing, base mounting, and shaft sealed to prevent most normal contamination from entering unit.

WEIGHT: 1.9 lbs. (.9Kg)
MAX OPERATING TEMP.: 140°F (60°C)
NUMBER WHEELS: 5 with 1/4" (6.4mm) high numerals

Other optional features include:

- Handwheels
- Custom graphics on handwheel face and metal bezel face.
- Mounting holes in back plate.
- Bores smaller than .500(12.7) and larger than .750(19.1), up to 1.062 (27.0)
- Readouts showing english/metric

OPERATION

Mission Industries digital position indicators are shaft driven mechanical measuring devices. Each indicator incorporates a geared number wheel set. Numerals change along the reading line as the actuating shaft on which the instrument is mounted rotates clockwise or counterclockwise. The reading line shows five numerals in line, broken at the decimal position by a number color change. See numeral layout below.

A zero adjusting screw* located on the face of the instrument housing enables the installer to change the numerals along the reading line, independent of the actuating shaft rotation. This feature provides a means of zeroing the unit at installation.

Choose from four models, each having a different reading line. Refer to page 3 for model breakdown and ordering data.

* The zero adjust feature is not available on a digital indicator with oversized bore, or when using a 00125 or larger ratio.

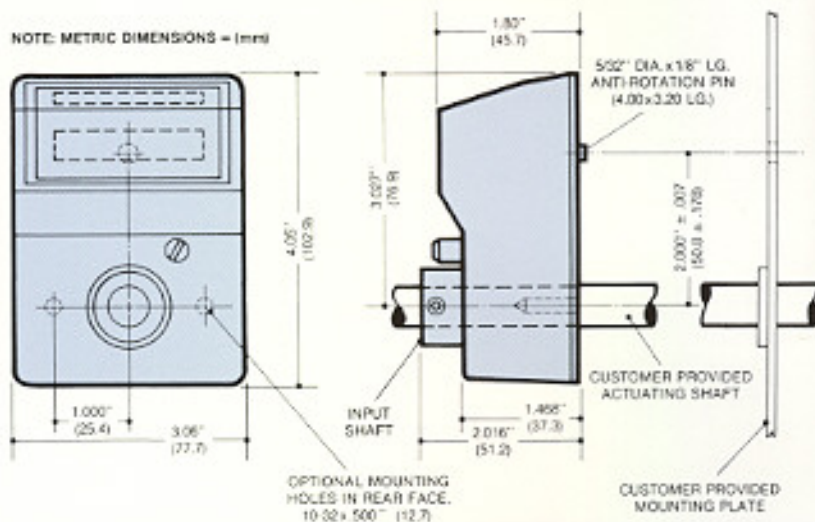
READOUT SELECTION CHART

Reading after one revolution from 00000*					MAX RPM
.00010	0.0010	00.010	000.10	0001.0	200
.00020	0.0020	00.020	000.20	0002.0	200
.00025	0.0025	00.025	000.25	0002.5	200
.00040	0.0040	00.040	000.40	0004.0	200
.00050	0.0050	00.050	000.50	0005.0	200
.00100	0.0100	00.100	001.00	0010.0	100
.00125	0.0125	00.125	001.25	0012.5	100

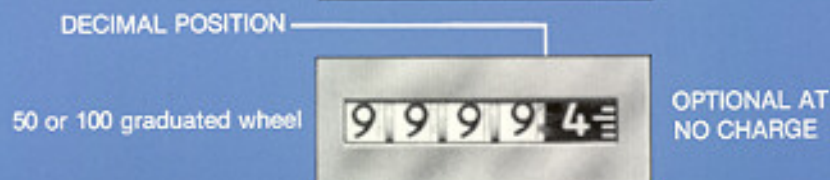
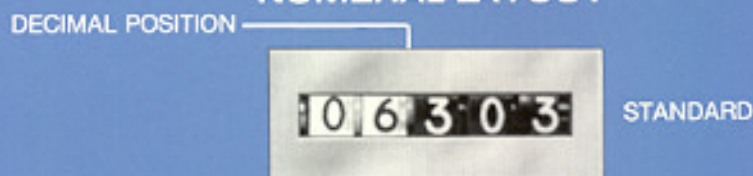
*NOTE: OTHER READOUTS AVAILABLE AS OPTIONS.

PHYSICAL DIMENSIONS

NOTE: METRIC DIMENSIONS = (mm)



NUMERAL LAYOUT



INSTALLATION

The digital indicators can be mounted on a vertical, horizontal, or angled actuating shaft. Four reading lines are offered to allow positioning the instrument at eye level, below eye level, or above eye level.

DIGITAL POSITION INDICATORS

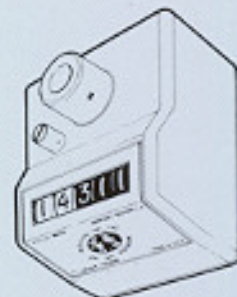
MODEL 250A



MODEL 250B



MODEL 250C



MODEL 250D

Installation Sequence:

1. Customer determines mounting (Refer to Physical Dimensions to locate non-rotation hole.)
2. Adjust unit to zero by rotating input shaft.
3. Slide instrument onto actuating shaft. Locate anti-rotation pin in non-rotation hole in mounting surface.
4. Lock instrument to actuating shaft by securing set screw in input shaft.
5. Use zero adjust screw to set desired initial reading.

SPECIAL HANDWHEEL

As an option, Mission Industries will provide a custom handwheel for the digital position indicator. Specify that preference by placing an "H" in the appropriate order data position. Handwheels mount to customer's shaft.

Mission Industries can add your company logo or function graphics to the face of the handwheel.

ORDERING INFORMATION

(specify if application is for manual or motor driven shaft)

250 B S M D - 00.100 (50) CW - 1/2 H

OPTIONAL HANDWHEEL

STD. BORE: 1/2", 5/8", 3/4"
OPT. BORE: ALL OTHERS

CW — NUMBERS INCREASE CLOCKWISE
CCW — NUMBERS INCREASE COUNTERCLOCKWISE

OPTIONAL AT NO COST — 50 OR 100 GRADUATED WHEEL

READOUT AFTER ONE COMPLETE ROTATION OF SHAFT

REQUIRED ONLY IF MOTOR DRIVEN SHAFT (LEAVE BLANK FOR ALL OTHER APPLICATIONS)

OPTIONAL MOUNT

S INDICATES SEALED UNIT

BLANK SPACE INDICATES STANDARD DUSTPROOF

MODEL NUMBER — REFERENCE ABOVE ILLUSTRATIONS



ANALOG (DIAL) POSITION INDICATORS



Large

Medium

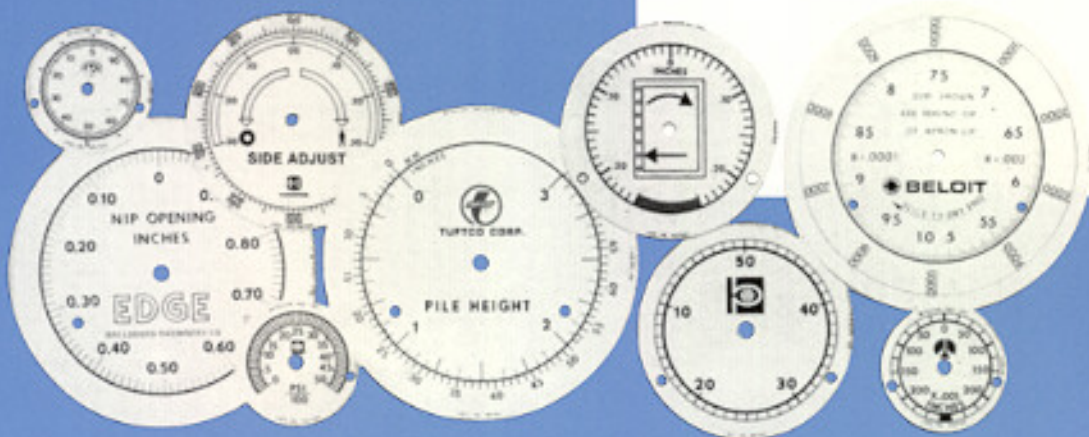
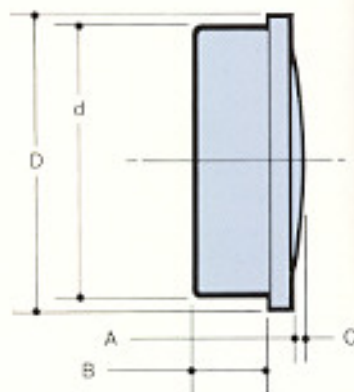
Small

THREE SIZES AVAILABLE

Mission Industries Analog Position Indicators are available in three sizes to be mounted in handwheel centers. These indicators can be ordered separately or premounted in one of our handwheels. Refer to page 7 for handwheel information. Special applications are handled as custom orders. Our design engineers work directly with the customer in these cases.

INDICATOR HOUSING DIMENSIONS

Size	Dial Face Diameter	A	B	C	d	D
Small	1.81	1.09	.79	.07	2.16	2.32
Medium	3.12	1.21	.91	.04	3.45	3.61
Large	4.50	1.21	.91	.10	4.83	4.99



Custom dial faces are available

INSTALLATION

Self-contained simplicity. Nothing to hookup, no complicated circuits to run, no electronics to install. Easy mounting; zero the instrument, zero the input shaft, set the instrument into the handwheel cavity and lightly tighten the screw.

CONSTRUCTION

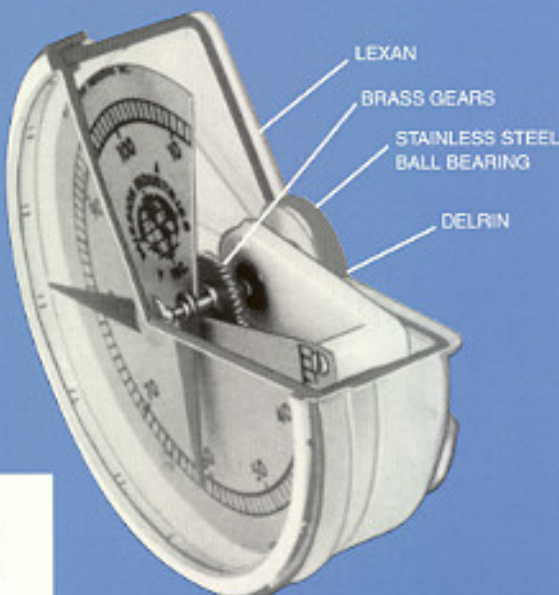
- Lexan housing and lens...lightweight and resilient, will not rust or corrode.
- Stainless steel ball bearing...provides a precise smooth rolling mounting for the gear cluster frame.
- Injection molded Delrin gear cluster frame...improved weight reduction and reliability.
- Hobbed brass gears...insures positive, long lasting drive train.
- 4 types of housing construction available:

MODEL/DESCRIPTION	CUSTOMER SHAFT RPM REQUIREMENTS	ORDERING SYMBOL
STANDARD - Dustproof	NONE	BLANK
SEALED - Hot and Cold Water Sealed	NONE	S
MINERAL OIL FILLED - Prevents misting of lens, dampens dial from machine vibrations	LESS THAN 30 RPM	0
SEALED WITH SILICON - Prevents misting of lens and is waterproof	NONE	W

ANALOG (DIAL) POSITION INDICATORS

OPERATION

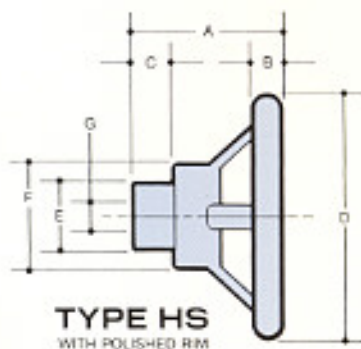
Our indicators operate by the forces of gravity working through a gear train. The analog indicator dial is mounted to a weighted cluster gear frame. That weighted frame is suspended from the indicator housing input shaft. As the input shaft turns, the force of gravity acts on the weighted cluster gear frame and the dial remains stationary. Input shafts may be inclined up to 45° from horizontal. Readings are indicated by the pointer being driven through the cluster gear train. Gear ratios are determined by rotating the input shaft from one limit to the other. Mission Industries provides gear ratios from 4:1 overdrive to 1:1080 reduction. This range allows us to provide an indicator to fit almost any application.



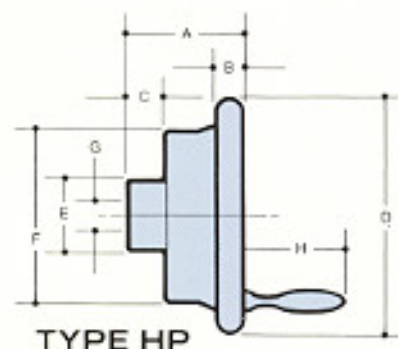
INDICATOR TRANSMISSION RATIOS

Size	Available Ratios								
Small	4:1	3:1	2:1	1:2	1:3	1:4	1:5	1:6	
	1:8	1:10	1:12	1:15	1:16	1:18	1:20	1:24	
	1:25	1:30	1:36	1:40	1:48	1:60	1:64	1:72	
	1:80	1:96	1:100	1:120					
Medium and Large	4:1	3:1	2:1	1:2	1:3	1:4	1:5	1:6	1:8
	1:10	1:12	1:15	1:16	1:18	1:20	1:24	1:25	
	1:30	1:36	1:40	1:48	1:50				
	1:60	1:64	1:72	1:80	1:96	1:100	1:120		
	1:150	1:160	1:180	1:200	1:240	1:250			
	1:300	1:320	1:360	1:400	1:450	1:500			
	1:600	1:648	1:720	1:750	1:900	1:1080			

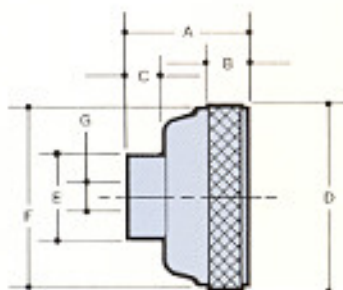
INSTALLATION DATA



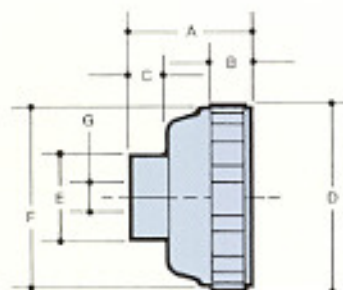
TYPE HS
WITH POLISHED RIM



TYPE HP
POLISHED RIM AND WITH OR
WITHOUT REVOLVING HANDLE



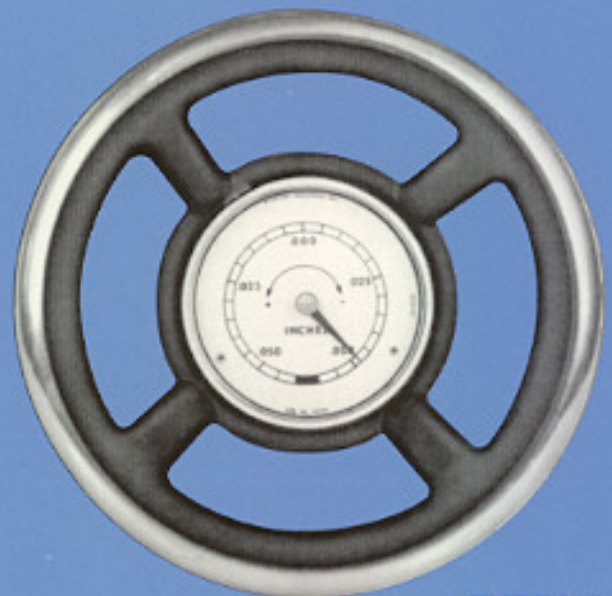
TYPE HK
WITH KNURLED RIM



TYPE HF
WITH FLUTED RIM

HANDWHEELS

FOR ANALOG POSITION INDICATORS



TYPE HS



TYPE HP



TYPE HK



TYPE HF

HANDWHEEL DIMENSIONS

TYPE	DIMENSION							
	A	B	C	D	E	F	*G(max)	H
HF3	2.08	.76	.75	3.05	1.32	2.54	*.75	—
HK3	2.08	.53	.75	2.60	1.32	2.48	*.75	—
HK5	2.35	.44	.88	4.09	1.54	3.69	*1.00	—
HP3	2.18	.80	.75	3.10	1.32	2.40	*.75	2.12
HP5	2.56	.84	.88	4.75	1.54	3.69	*1.00	1.93
HP7	2.70	.81	.97	6.86	1.81	5.20	*1.25	1.93
HP10	2.90	.90	1.14	9.62	2.27	5.36	*1.50	3.00
HS6	4.30	.81	1.28	6.10	2.34	4.00	*1.50	—
HS8	4.60	.85	1.28	7.80	2.26	4.19	*1.50	—

*This is maximum bore size available. All handwheels are shipped with .25 bores unless otherwise specified. Bores other than .25 are at additional cost. Keyways, set screw threads, and special machining on handwheels available at additional cost.

HANDWHEEL AND INDICATOR COMBINATIONS

HANDWHEEL SIZE	INDICATOR SIZE	DIAL FACE DIAMETER
HF3	Small	1.81
HK3	Small	1.81
HK5	Medium	3.12
HP3	Small	1.81
HP5	Medium	3.12
HP7	Large	4.50
HP10	Large	4.50
HS6	Medium	3.12
HS8	Medium	3.12

WARRANTY:

Products assembled and shipped by Mission Industries are warranted to be free of defects caused by workmanship or materials for a period of one year from date of invoice to original purchaser.

If a product fails due to a defect in workmanship or materials during the warranty period, that product will be repaired or exchanged at Mission Industries' option. Such repairs or exchanges will be FOB Fort Wayne, Indiana.

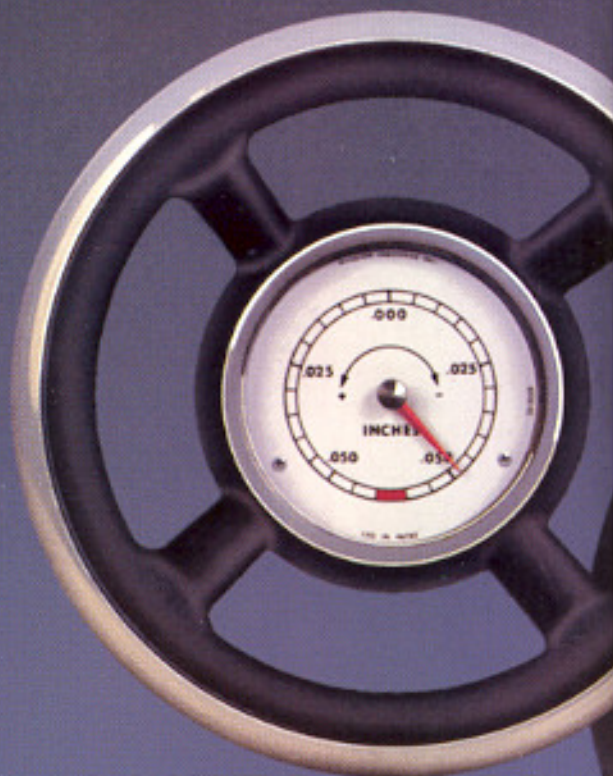
DISCLAIMERS OF WARRANTY

Mission Industries, Inc. is not responsible for consequential damage caused by misuse of its products.

Accidental damage beyond the control of Mission Industries, Inc. is not covered by the warranty. Thus, the warranty does not apply if the product has been abused, dropped, hit, or otherwise mishandled.

Warranty repairs do not cover incidental costs such as installation and labor.

This warranty is in lieu of any other warranties expressed or implied, including an implied warranty of merchantability or fitness for a particular purpose, and of any other obligations or liabilities on the part of Mission Industries, Inc.



MISSION INDUSTRIES, INCORPORATED

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