PM Instrumentation

HX-PA

Long Range Ratiometric Voltage Output

UniMeasure

Utilizing a precision potentiometer, the **UniMeasure HX-PA Series** position transducer provides basic absolute positioning with an analog output. With a steady state input voltage, and with the potentiometer connected as a voltage divider, the ratiometric output voltage is directly proportional to wire rope extension. The unit will function with any input voltage up to 30 volts maximum. To obtain best output linearity, the input voltage should be well regulated.

SPECIFICATIONS

GENERAL

Measurement Ranges	See Supplemental Data[1], Table 12
Sensing Device	Precision Potentiometer
Connector	MS3102E-14S-6P
Mating Connector (included)	MS3106E-14S-6S

PERFORMANCE

Linearity	
2", 3", 4", 5" & 6"Ranges	±0.25% Full Scale
10", 15", 20" & 25" Ranges	±0.15% Full Scale
All other ranges	±0.10% Full Scale
Repeatability	±0.015% Full Scale
Resolution	Essentially Infinite

ENVIRONMENTAL

Operating temperature	-40°C to +95°C
Storage Temperature	-55° to +100°C
Operating humidity	100%
Vibration	15 G's 0.1 ms max.
Shock	50 G's 0.1 ms max.

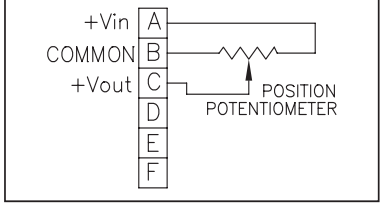
INGRESS PROTECTION (Exclusive of Wire Rope Area)

Standard	IP-65 (NEMA 4)
Optional	IP-68 (NEMA 6)

ELECTRICAL

Input Impedance	1000Ω ±10%
Output Impedance	0 to 1000 Ω
Excitation Voltage	30 Volts Max. AC or DC
Output Voltage Change Over Full Range of Transducer	92% to 98% of Excitation Voltage

CONNECTION DIAGRAM



FOOTNOTES TO SPECIFICATIONS

1. Supplemental Data section located at end of HX Series pages.

MODEL NUMBER CONFIGURATION

HX-PA- ⓪ - ①②③ - ④⑤⑥ - ⑦⑧⑨

BASIC CONFIGURATION (FOR ALL RANGES)

HX-PA-50-S10-N1S-1BC

⓪ RANGE

Select Measurement Range From Supplemental Data Table 12 (next page), Insert Corresponding Measurement Range Designator

① WIRE ROPE

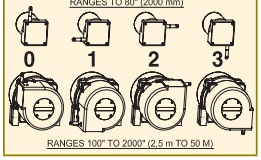
- **S** ..... Stainless Steel (See Supplemental Data, Table 12)
- **N** ..... Ø.018 (0,45 mm) Nylon Jacketed Stainless Steel Ranges to 80" (2m) only. (formerly NJC)
- **J** ..... Ø.037 (0,94 mm) Nylon Jacketed Stainless Steel Ranges 100" (2.5m) to 500" (12.7m) only.

② WIRE ROPE TENSION

- **1** ..... Standard
- **2** ..... Reduced (Ranges to 80" only)

③ WIRE ROPE EXIT DIRECTION

Use Number designators shown



④

- **N** ..... Required Designator

⑤ POTENTIOMETER VALUE

- **1** ..... 1K ohm
- **3** ..... 5K ohm*
- **4** ..... 10K ohm*

**Not Available Ranges 2" to 6"*

See Supplemental Data for Linearity Option

⑥ ELECTRICAL OUTPUT POLARITY

- **S** ..... Standard (increasing output as wire rope is extended)
- **R** ..... Reversed (decreasing output as wire rope is extended)

NOTES FOR OPTION BOXES ⑦, ⑧, and ⑨

IP-65 (NEMA 4): Transducer equipped with body mounted connector and with or without mating connector. Mating connector with electrical cable available separately as part number **10119-xM** where 'x' is length of electrical cable in meters.

IP-68 (NEMA 6): Transducer equipped with bulkhead fitting and length of electrical cable. Remote end of electrical cable may be outfitted with water proof connector. Mating connector with electrical cable available separately as part number **10424-xM** where 'x' is length of electrical cable in meters.

⑦ INGRESS PROTECTION

- **1** ..... IP-65 (NEMA 4)
- **2** ..... IP-68 (NEMA 6)
- **3** ..... IP-68 (NEMA 6) Corrosion Resistant Construction

⑧ IP-65–NEMA 4 CONNECTOR

- **B** ..... 6 Pin 3102E Body Mounted Connector

IP-68–NEMA 6 ELECTRICAL CABLE

- **P** ..... Bulkhead Fitting w/ 0.3m (12") Electrical Cable
- **3** ..... Bulkhead Fitting w/ 3m (10') Electrical Cable
- **4** ..... Bulkhead Fitting w/ 4m (13.5') Electrical Cable
- **5** ..... Bulkhead Fitting w/ 5m (16.5') Electrical Cable
- **6** ..... Bulkhead Fitting w/ 6m (20') Electrical Cable
- **7** ..... Bulkhead Fitting w/ 7m (23') Electrical Cable

⑨ IP-65–NEMA 4 MATING CONNECTOR

- **C** ..... IP-65 Mating Connector Included
- **K** ..... IP-65 Mating Connector Omitted*

Electrical cable with mating connector may be ordered separately as part number **10119-xM where 'x' is the length required in meters.*

IP-68–NEMA 6 CABLE MOUNTED CONNECTOR

- **N** ..... No connector on end of electrical cable
- **K** ..... IP-68 Cable to cable connector with ***NO*** mating connector**

*****Electrical cable with mating connector may be ordered separately as part number **10424-xM** where 'x' is the length required in meters. Mating connector alone unavailable.*

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PM Instrumentation

HX-PB

Long Range Brindge Voltage Output

UniMeasure

The **UniMeasure HX-PB Series** transducer includes the sensing potentiometer in a bridge circuit with adjustable zero and span controls. The completely passive circuit gives a maximum output voltage at maximum span setting of approximately 18% of the input voltage. The span adjustment allows for easy interface to a bridge amplifier. With zero position adjustable to anywhere within the total range of the transducer, voltage output is positive when extending the wire rope from the selected zero position and is negative when retracting from zero.

SPECIFICATIONS

GENERAL

Measurement Ranges	See Supplemental Data[1], Table 12
Sensing Device	Precision Potentiometer
Connector	MS3102E-14S-6P
Mating Connector (included)	MS3106E-14S-6S

PERFORMANCE

Linearity	
2", 3", 4", 5" & 6"Ranges	±0.25% Full Scale
10", 15", 20" & 25" Ranges	±0.15% Full Scale
All other ranges	±0.10% Full Scale
Repeatability	±0.015% Full Scale
Resolution	Essentially Infinite

ENVIRONMENTAL

Thermal Coefficient of Sensing Element	±100 PPM/°C Max.
Operating Temperature	-40°C to +95°C
Operating Humidity	100%
Vibration	15 G's 0.1 ms max.
Shock	50 G's 0.1 ms max.

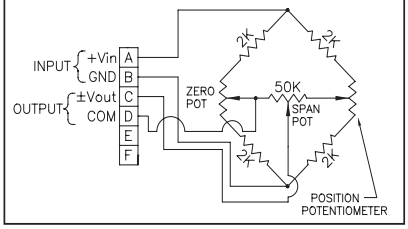
INGRESS PROTECTION (Exclusive of Wire Rope Area)

Standard	IP-65 (NEMA 4)
Optional	IP-68 (NEMA 6)

ELECTRICAL

Input Impedance	1.25KΩ
Output Impedance	1.25KΩ at max span setting 14.4KΩ @ 51% max. span setting
Excitation Voltage	30 Volts Max. AC or DC
Output Voltage	User adjustable to a maximum of 18% of Input Voltage

CONNECTION DIAGRAM



FOOTNOTES TO SPECIFICATIONS

1. Supplemental Data section located at end of HX Series pages.

MODEL NUMBER CONFIGURATION

HX-PB- 0 - 1 2 3 - 4 5 6 - 7 8 9

BASIC CONFIGURATION (FOR ALL RANGES)

HX-PB-50-S10-N0S-1BC

0 RANGE

Select Measurement Range From Supplemental Data Table 12 (next page), Insert Corresponding Measurement Range Designator

1 WIRE ROPE

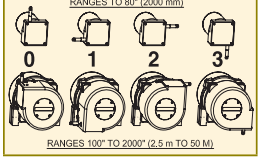
- **S** ..... Stainless Steel (See Supplemental Data, Table 12)
- **N** ..... Ø.018 (0,45 mm) Nylon Jacketed Stainless Steel Ranges to 80" (2m) only. (formerly NJC)
- **J** ..... Ø.037 (0,94 mm) Nylon Jacketed Stainless Steel Ranges 100" (2.5m) to 500" (12.7m) only.

2 WIRE ROPE TENSION

- **1** ..... Standard
- **2** ..... Reduced (Ranges to 80" only)

3 WIRE ROPE EXIT DIRECTION

Use Number designators shown



4 N.....Required Designator

5 0.....Required Designator

6 ELECTRICAL OUTPUT POLARITY

- **S** .....Standard (increasing output as wire rope is extended)
- **R** .....Reversed (decreasing output as wire rope is extended)

7 INGRESS PROTECTION

- **1** ..... IP-65 (NEMA 4)
- **2** ..... IP-68 (NEMA 6)
- **3** ..... IP-68 (NEMA 6) Corrosion Resistant Construction

8 IP-65–NEMA 4 CONNECTOR

- **B** ..... 6 Pin 3102E Body Mounted Connector

IP-68–NEMA 6 ELECTRICAL CABLE

- **P** ..... Bulkhead Fitting w/ 0.3m (12") Electrical Cable
- **3** ..... Bulkhead Fitting w/ 3m (10') Electrical Cable
- **4** ..... Bulkhead Fitting w/ 4m (13.5') Electrical Cable
- **5** ..... Bulkhead Fitting w/ 5m (16.5') Electrical Cable
- **6** ..... Bulkhead Fitting w/ 6m (20') Electrical Cable
- **7** ..... Bulkhead Fitting w/ 7m (23') Electrical Cable

9 IP-65–NEMA 4 MATING CONNECTOR

- **C** ..... IP-65 Mating Connector Included
- **K** ..... IP-65 Mating Connector Omitted*

*Electrical cable with mating connector may be ordered separately as part number **10119-xM** where 'x' is the length required in meters.

IP-68–NEMA 6 CABLE MOUNTED CONNECTOR

- **N** .....No connector on end of electrical cable
- **K** .....IP-68 Cable to cable connector with ***NO*** mating connector**

Electrical cable with mating connector may be ordered separately as part number **10424-xM where 'x' is the length required in meters. Mating connector alone unavailable.

NOTES FOR OPTION BOXES 7, 8, and 9

IP-65 **(NEMA 4):** Transducer equipped with body mounted connector and with or without mating connector. Mating connector with electrical cable available separately as part number **10119-xM** where 'x' is length of electrical cable in meters.

IP-68 **(NEMA 6):** Transducer equipped with bulkhead fitting and length of electrical cable. Remote end of electrical cable may be outfitted with water proof connector. Mating connector with electrical cable available separately as part number **10424-xM** where 'x' is length of electrical cable in meters.

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HX-P420

Long Range 4-20 mA Output

UniMeasure

The **HX-P420** position transducer provides a 4 to 20 mA output signal with a potentiometric sensor. The HX-P420 is particularly advantageous in electrically noisy environments. Since the transmitter is loop powered, an assembled system consists of a power supply, current monitor, and transmitter all connected in series. Zero and span adjustments allow setting the 4 mA position within the first 30% of total travel and setting the 20 mA position within 80% to 100% of total travel. The HX-P420 may be powered with a supply voltage in the range of 9 to 35 VDC subject to the total loop resistance.

MODEL NUMBER CONFIGURATION

GENERAL

Measurement Ranges	See Supplemental Data[1], Table 12
Sensing Device	Precision Potentiometer
Connector	MS3102E-14S-6P
Mating Connector (included)	MS3106E-14S-6S

PERFORMANCE

Linearity	
2", 3", 4", 5" & 6"Ranges	±0.30% Full Scale
10", 15", 20" & 25" Ranges	±0.20% Full Scale
All other ranges	±0.15% Full Scale
Repeatability	±0.015% Full Scale
Resolution	Essentially Infinite

ENVIRONMENTAL

Thermal Coefficient of Sensing Element	±100 PPM/°C Max.
Operating Temperature	-40°C to +95°C
Operating Humidity	100%
Vibration	15 G's 0.1 ms max.
Shock	50 G's 0.1 ms max.

INGRESS PROTECTION (Exclusive of Wire Rope Area)

Standard	IP-65 (NEMA 4)
Optional	IP-68 (NEMA 6)

FOOTNOTES TO SPECIFICATIONS

1. Supplemental Data section located at end of HX Series pages.

ELECTRICAL

Output	User Adjustable 4 to 20 mA
Excitation Voltage	9 to 35 VDC
Min. Supply Voltage	(.02 x Load Res.) + 9 VDC
Insulation Resistance	100 Megohms min. at 100 VDC
Adjustment Range	
4 mA	0 to 30% of Range
20 mA	80% to 100% of Range
Protection	Reversed Polarity

Intrinsic Safety (Optional):
Class 1, Div 1, Groups A,B,C,D
Class 2, Groups E, F, G
Class III hazardous locations

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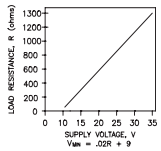
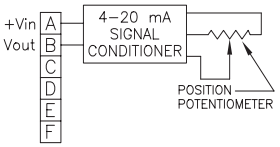
LOAD RESISTANCE VS INPUT VOLTAGE



CONNECTION DIAGRAM



SPECIFICATIONS

HX-P420- 0 - 1 2 3 - 4 5 6 - 7 8 9

BASIC CONFIGURATION (FOR ALL RANGES)

HX-P420-50-S10-N0S-1BC

0 RANGE
Select Measurement Range From Supplemental Data **Table 12** (next page), Insert Corresponding Measurement Range Designator

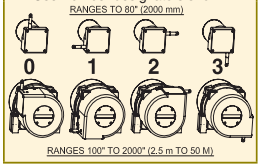
1 WIRE ROPE

S	Stainless Steel (See Supplemental Data, Table 12)
N	Ø.018 (0,45 mm) Nylon Jacketed Stainless Steel Ranges to 80" (2m) only. (formerly NJC)
J	Ø.037 (0,94 mm) Nylon Jacketed Stainless Steel Ranges 100" (2.5m) to 500" (12.7m) only.

2 WIRE ROPE TENSION

1	Standard
2	Reduced (Ranges to 80" only)

3 WIRE ROPE EXIT DIRECTION
Use Number designators shown



4 HAZARDOUS AREA PROTECTION

N	None
X	UL, CSA Intrinsically Safe

"X" Option available for measurement ranges to 800" maximum.

c UL us LISTED 44TU Exia

5 0.....Required Designator

6 ELECTRICAL OUTPUT POLARITY

S	Standard (increasing output as wire rope is extended)
R	Reversed (decreasing outputas wire rope is extended)

NOTES FOR OPTION BOXES 7, 8, and 9

IP-65 **(NEMA 4):** Transducer equipped with body mounted connector and with or without mating connector. Mating connector with electrical cable available separately as part number **10119-xM** where 'x' is length of electrical cable in meters.

IP-68 **(NEMA 6):** Transducer equipped with bulkhead fitting and length of electrical cable. Remote end of electrical cable may be outfitted with water proof connector. Mating connector with electrical cable available separately as part number **10424-xM** where 'x' is length of electrical cable in meters.

7 INGRESS PROTECTION

1	IP-65 (NEMA 4)
2	IP-68 (NEMA 6)
3	IP-68 (NEMA 6) Corrosion Resistant Construction

8 IP-65–NEMA 4 CONNECTOR

B	6 Pin 3102E Body Mounted Connector

IP-68–NEMA 6 ELECTRICAL CABLE

P	Bulkhead Fitting w/ 0.3m (12") Electrical Cable
3	Bulkhead Fitting w/ 3m (10') Electrical Cable
4	Bulkhead Fitting w/ 4m (13.5') Electrical Cable
5	Bulkhead Fitting w/ 5m (16.5') Electrical Cable
6	Bulkhead Fitting w/ 6m (20') Electrical Cable
7	Bulkhead Fitting w/ 7m (23') Electrical Cable

9 IP-65–NEMA 4 MATING CONNECTOR

C	IP-65 Mating Connector Included
K	IP-65 Mating Connector Omitted*

*Electrical cable with mating connector may be ordered separately as part number **10119-xM** where 'x' is the length required in meters.

IP-68–NEMA 6 CABLE MOUNTED CONNECTOR

N	No connector on end of electrical cable
K	IP-68 Cable to cable connector with ***NO*** mating connector**

Electrical cable with mating connector may be ordered separately as part number **10424-xM where 'x' is the length required in meters. Mating connector alone unavailable.

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HX-P510

Long Range Analog Output

UniMeasure

The **UniMeasure HX-P510 Series** transducer offers a voltage output with wide adjustability to give a 0 to 5, 0 to 10, ±5 or ±10 VDC output. The device may be powered with an unregulated voltage in the range of 4.9 to 30 VDC. Zero and span adjustment potentiometers are readily accessible. With the zero position set anywhere within the first 30% of total travel, the span may be adjusted to give a full 0 to 5 or 0 to 10 VDC output with the span set anywhere within the last 20% of travel. Alternatively, the zero position may be set anywhere between 10% and 90% of full travel to give an output of ±5 or ±10 VDC with the span set between 50% to 100% of the longest travel from the zero position.

SPECIFICATIONS

GENERAL

Available Measurement Ranges .....See Supplemental Data[1], Table 12
Sensing Device.....Precision Potentiometer
Connector.....MS3102E-14S-6P
Mating Connector (included).....MS3106E-14S-6S

PERFORMANCE

Linearity
2", 3", 4", 5" & 6"Ranges.....±0.30% Full Scale
10", 15", 20" & 25" Ranges .....±0.20% Full Scale
All other ranges.....±0.15% Full Scale
Repeatability .....±0.015% Full Scale
Resolution.....Essentially Infinite

ENVIRONMENTAL

Operating temperature .....-40°C to +85°C
Storage Temperature.....-55° to +100°C
Operating humidity.....100%
Vibration .....15 G's 0.1 ms max.
Shock.....50 G's 0.1 ms max.

INGRESS PROTECTION (Exclusive of Wire Rope Area)

Standard.....IP-65 (NEMA 4)
Optional .....IP-68 (NEMA 6)

ELECTRICAL

Output.....0 to 5 or 10 VDC, ±5 or ±10 VDC
Excitation Voltage.....4.9 to 30 VDC
Excitation Current.....25 mA max.
Output Impedance.....10Ω max.
Output Load .....5KΩ min.

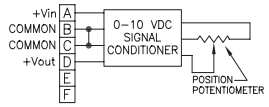
ADJUSTMENT RANGE–0 to 5 or 0 to 10 VDC

Zero .....0 to 30% of Range
Span .....80% to 100% of Range

ADJUSTMENT RANGE–±5 or ±10 VDC

Zero .....10% to 90% of Range
Span .....50% to 100% of Longest Possible
Travel from Zero Position
Protection .....Reversed Polarity
Temperature Stability.....0.02%/°C of Span

CONNECTION DIAGRAM



FOOTNOTES TO SPECIFICATIONS
1. Supplemental Data section located at end of HX Series pages.

MODEL NUMBER CONFIGURATION

HX-P510- 0 - 1 2 3 - 4 5 6 - 7 8 9

BASIC CONFIGURATION (FOR ALL RANGES)

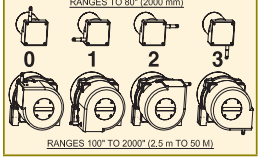
HX-P510-50-S10-N0S-1BC

0 RANGE
Select Measurement Range From Supplemental Data Table 12 (next page), Insert Corresponding Measurement Range Designator

1 WIRE ROPE
S..... Stainless Steel (See Supplemental Data, Table 12)
N..... Ø.018 (0,45 mm) Nylon Jacketed Stainless Steel Ranges to 80" (2m) only. (formerly NJC)
J..... Ø.037 (0,94 mm) Nylon Jacketed Stainless Steel Ranges 100" (2.5m) to 500" (12.7m) only.

2 WIRE ROPE TENSION
1..... Standard
2..... Reduced (Ranges to 80" only)

3 WIRE ROPE EXIT DIRECTION
Use Number designators shown



4 N.....Required Designator

5 0.....Required Designator

6 ELECTRICAL OUTPUT POLARITY
S.....Standard (increasing output as wire rope is extended)
R.....Reversed (decreasing output as wire rope is extended)

7 INGRESS PROTECTION
1..... IP-65 (NEMA 4)
2..... IP-68 (NEMA 6)
3..... IP-68 (NEMA 6) Corrosion Resistant Construction

8 IP-65–NEMA 4 CONNECTOR
B..... 6 Pin 3102E Body Mounted Connector

IP-68–NEMA 6 ELECTRICAL CABLE
P..... Bulkhead Fitting w/ 0.3m (12") Electrical Cable
3..... Bulkhead Fitting w/ 3m (10') Electrical Cable
4..... Bulkhead Fitting w/ 4m (13.5') Electrical Cable
5..... Bulkhead Fitting w/ 5m (16.5') Electrical Cable
6..... Bulkhead Fitting w/ 6m (20') Electrical Cable
7..... Bulkhead Fitting w/ 7m (23') Electrical Cable

9 IP-65–NEMA 4 MATING CONNECTOR
C..... IP-65 Mating Connector Included
K..... IP-65 Mating Connector Omitted*
*Electrical cable with mating connector may be ordered separately as part number **10119-xM** where 'x' is the length required in meters.

IP-68–NEMA 6 CABLE MOUNTED CONNECTOR
N.....No connector on end of electrical cable
K.....IP-68 Cable to cable connector with ***NO*** mating connector**
Electrical cable with mating connector may be ordered separately as part number **10424-xM where 'x' is the length required in meters. Mating connector alone unavailable.

NOTES FOR OPTION BOXES 7, 8, and 9

IP-65 (NEMA 4): Transducer equipped with body mounted connector and with or without mating connector. Mating connector with electrical cable available separately as part number **10119-xM** where 'x' is length of electrical cable in meters.

IP-68 (NEMA 6): Transducer equipped with bulkhead fitting and length of electrical cable. Remote end of electrical cable may be outfitted with water proof connector. Mating connector with electrical cable available separately as part number **10424-xM** where 'x' is length of electrical cable in meters.

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PM Instrumentation

HX-EP

Position Transducer

UniMeasure

Utilizing an incremental encoder as the sensor, the **UniMeasure HX-EP Series** position transducer provides a two channel square wave current sinking output signal in quadrature. The standard output is a single-ended TTL compatible square. The resolution values shown in the specifications table indicate resolution for times 1 counting mode where a count is registered for one up transition in channel A. With interface electronics capable of times 2 or times 4 counting mode, a true resolutional increase of 2 or 4 may be obtained. For example, the HX-EP-50 has a resolution of approximately .004" per count in times 1 counting mode whereas the resolution is approximately .001" per count in times 4 counting mode.
The actual resolution of a HX-EP transducer differs from unit to unit because of tolerances associated with the wire rope diameter and the capstan upon which the wire rope winds. The nylon jacketed wire rope option will have the effect of slightly reducing the resolution. Linearity and repeatability remain independent of resolution. In applications where the output count is interpreted as a percentage of total travel, resolutional differences from unit to unit are not critical. However, in applications where the digital output is to be interfaced to a digital display to give an output in engineering units, the calibration constant supplied with the transducer may be used to calculate a suitable scale multiplier to produce the correct engineering units. Alternative outputs shown in the Electrical Outputs table below are available to facilitate interfacing to a variety of different types of equipment.

SPECIFICATIONS

GENERAL
- Connector MS3102E-14S-6P
- Mating Connector MS3106E-14S-6S
- Available Measurement Ranges..... See Supplemental Data[1], Table 12

PERFORMANCE
- Linearity..... ±0.03% Full Scale
- Repeatability ..... ±0.015% Full Scale
- Resolution ..... See Table 9

ENVIRONMENTAL
- Operating temperature..... -20°C to +95°C
- Storage temperature ..... -40°C to +100°C
- Operating humidity..... 100%
- Vibration ..... 15 G's 0.1 ms max.
- Shock ..... 50 G's 0.1 ms max.

INGRESS PROTECTION (Exclusive of Wire Rope Area)
- Standard..... IP-65 (NEMA 4)
- Optional..... IP-68 (NEMA 6)

ELECTRICAL
- Input Voltage ..... +5 VDC ±5% or 8-28 VDC
- Input Current ..... 125 mA Maximum
- Output ..... Two channel TTL square wave
- Phase Quadrature ..... 90°±20°

TABLE 9–RESOLUTION

MODEL	RANGE inch	RANGE metric	RESOLUTION[2] counts/inch	RESOLUTION[2] counts/mm	RESOLUTION TOLERANCE[2]
HX-EP-10	10	250 mm	500.0	19.69	±0.30%
HX-EP-25	25	640 mm	250.0	9.84	±0.20%
HX-EP-50	50	1250 mm	250.0	9.84	±0.20%
HX-EP-60	60	1.5 m	205.8	8.10	±0.20%
HX-EP-80	80	2.0 m	155.2	6.11	±0.20%
HX-EP-100	100	2.5 m	82.9	3.26	±0.20%
ALL RANGES GREATER THAN 100"	100	2.5 m	82.9	3.26	±0.20%

ELECTRICAL OUTPUT

For electrical output description, waveform and wiring, See **Standard Series Supplemental Data, TABLE 8, Page 29.**

FOOTNOTES TO SPECIFICATIONS
1. Supplemental Data section located at end of HX Series pages.
2. The resolution shown is a calculated number based upon the capstan diameter, wire rope diameter and line count of the encoding device. The tolerance on the resolution accounts for resolutional differences from unit to unit due to manufacturing tolerances on the capstan and wire rope. In practice, the output count in a given unit of travel is an integer.

MODEL NUMBER CONFIGURATION

HX-EP- 0 - I 2 3 - 4 5 - 7 8 9

BASIC CONFIGURATION (FOR ALL RANGES)

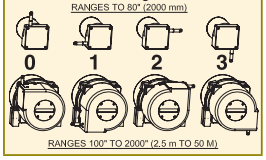
HX-EP-50-S10-N10-1BC

0 RANGE
Select Measurement Range From Supplemental Data Table 12 on page 12 (next page), Insert Corresponding Measurement Range Designator

I WIRE ROPE
- **S**..... Stainless Steel (See Supplemental Data, Table 12)
- **N**..... Ø.018 (0,45 mm) Nylon Jacketed Stainless Steel Ranges to 80" (2m) only. (formerly NJC)
- **J**..... Ø.037 (0,94 mm) Nylon Jacketed Stainless Steel Ranges 100" (2.5m) to 500" (12.7m) only.

2 WIRE ROPE TENSION
- **1**..... Standard
- **2**..... Reduced (Ranges to 80" only)

3 WIRE ROPE EXIT DIRECTION
Use Number designators shown



4
- **N**.....Required Designator

5 ELECTRICAL OUTPUT
- **10**.....5 VDC TTL Compatible, Two Channel
- **30**.....5 VDC Push-Pull Differential Line Drive
- **50**.....8 to 28 VDC Current Sinking Two Channel
- **70**.....8 to 28 VDC Push-Pull Differential Line Drive

For Description See TABLE 8 on next page

NOTES FOR OPTION BOXES 7, 8, and 9

IP-65 (NEMA 4): Transducer equipped with body mounted connector and with or without mating connector. Mating connector with electrical cable available separately as part number **10119-xM** where 'x' is length of electrical cable in meters.

IP-68 (NEMA 6): Transducer equipped with bulkhead fitting and length of electrical cable. Remote end of electrical cable may be outfitted with water proof connector. Mating connector with electrical cable available separately as part number **10424-xM** where 'x' is length of electrical cable in meters.

7 INGRESS PROTECTION
- **1**..... IP-65 (NEMA 4)
- **2**..... IP-68 (NEMA 6)
- **3**..... IP-68 (NEMA 6) Corrosion Resistant Construction

8 IP-65–NEMA 4 CONNECTOR
- **B**..... 6 Pin 3102E Body Mounted Connector

IP-68–NEMA 6 ELECTRICAL CABLE
- **P**..... Bulkhead Fitting w/ 0.3m (12") Electrical Cable
- **3**..... Bulkhead Fitting w/ 3m (10') Electrical Cable
- **4**..... Bulkhead Fitting w/ 4m (13.5') Electrical Cable
- **5**..... Bulkhead Fitting w/ 5m (16.5') Electrical Cable
- **6**..... Bulkhead Fitting w/ 6m (20') Electrical Cable
- **7**..... Bulkhead Fitting w/ 7m (23') Electrical Cable

9 IP-65–NEMA 4 MATING CONNECTOR
- **C**..... IP-65 Mating Connector Included
- **K**..... IP-65 Mating Connector Omitted*

*Electrical cable with mating connector may be ordered separately as part number **10119-xM** where 'x' is the length required in meters.

IP-68–NEMA 6 CABLE MOUNTED CONNECTOR
- **N**.....No connector on end of electrical cable
- **K**.....IP-68 Cable to cable connector with ***NO*** mating connector**

Electrical cable with mating connector may be ordered separately as part number **10424-xM where 'x' is the length required in meters. Mating connector alone unavailable.

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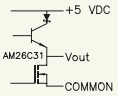
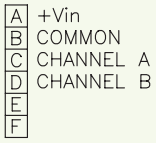
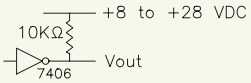
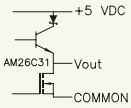
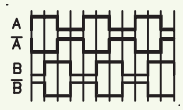
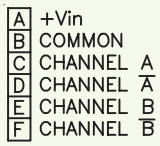
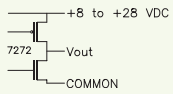
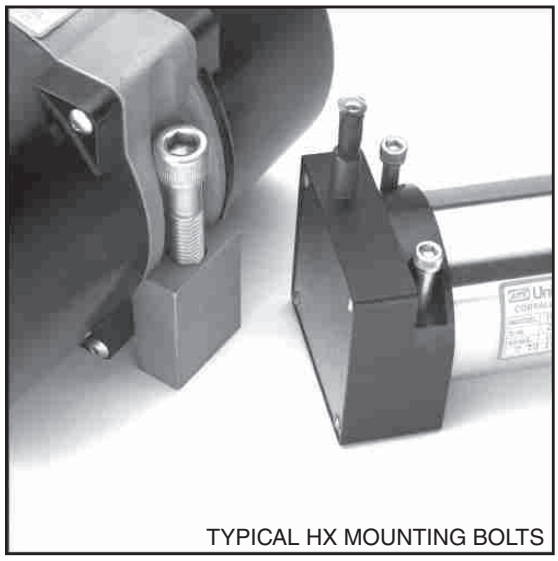
ADDITIONAL OPTIONS

TABLE 8

EP, HX-EP SERIES OPTIONAL ELECTRICAL OUTPUTS

OPTION	OUTPUT DESCRIPTION	OUTPUT STAGE	WAVEFORM	CONNECTOR WIRING
10	**5 VDC Current Sinking** 5 VDC TTL compatible output. Input Voltage: 5 VDC.			
50	**8 to 28 VDC Current Sinking** Current sinking output with 10KΩ internal pullup resistors. Input Voltage: 8 to 28 VDC.			
30	**5 VDC Push-Pull Differential Line Drive** Push-Pull, current sourcing and current sinking output. Output is compliant with requirements of TIA/EIA-422-B. Input Voltage: 5 VDC input.			
70	**8 to 28 VDC Push-Pull Differential Line Drive** Push-Pull, current sourcing and current sinking output. Input Voltage: 8 to 28 VDC.			

MECHANICAL SPECIFICATIONS



TYPICAL HX MOUNTING BOLTS

AVAILABLE MEASUREMENT RANGES .... See Table 12

CONSTRUCTION

Ranges 80" (2 m) and under	Anodized Aluminum Mounting Base Stainless Steel & Anodized Aluminum Housing
Ranges 100" (2.5 m) and greater	Stainless Steel Mounting Base High Impact, Corrosion Resistant Thermoplastic Housings
Wire Rope Tension	See Table 12
Wire Rope Diameter	See Table 12
Weight	See Table 12
Connector	MS3102A-14S-6P
Mating Connector	MS3106E-14S-6S
Optional NEMA 6 Capability	Bulkhead fitting with shielded twisted pair cable

Life[1]

Ranges 2” to 6”	5,000,000 full stroke cycles
Ranges 10” to 25”	500,000 full stroke cycles
Ranges 30” to 400”	250,000 full stroke cycles
Ranges 500” to 2000”	200x10^6 lineal inches

NOTES:
1. With 1K ohm potentiometer, wire rope misalignment 2° maximum at full stroke, relatively dust free environment, nylon jacketed wire rope on units with ranges 80” and less.

PM Instrumentation

HX-V

Linear Velocity Transducer

The **UniMeasure HX-V Series** linear velocity transducer incorporates a self-generating tachometer which eliminates the need for any external power supply. Extra long brush life, excellent stability and a wide operating temperature range make the V series transducer highly reliable for long term service.

SPECIFICATIONS

GENERAL

Available Measurement Ranges ..... See Supplemental Data[1], Table 12
Connector MS3102E-14S-6P
Mating Connector MS3106E-14S-6S

ENVIRONMENTAL

Operating temperature ..... -40°C to +95°C
Storage Temperature ..... -55° to +100°C
Operating humidity 100%
Vibration ..... 15 G's 0.1 ms max.
Shock ..... 50 G's 0.1 ms max.

INGRESS PROTECTION (Exclusive of Wire Rope Area)

Standard ..... IP-65 (NEMA 4)
Optional ..... IP-68 (NEMA 6)

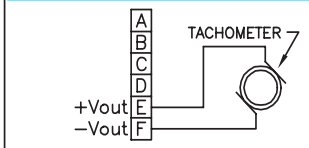
ELECTRICAL

Output ..... See Table 10
Linearity ..... ±0.10% F.S. with 10 VDC Max Output
Ripple ..... 3% Max.
Input ..... None Required; Self Generating
Output Impedance 350Ω
Thermal Effects ..... 0.01% Max. per Degree C through Range -20°C to 75°C

TABLE 10—VELOCITY OUTPUT

MEASUREMENT RANGE DESIGNATOR	VELOCITY OUTPUT mV/in/sec	VELOCITY OUTPUT mV/cm/sec
2, 10	200	78
3, 15, 30	136	53
4, 20, 40	103	40
5, 25, 50	82	32
6, 60	69	27
80	52	20
100	180	71
ALL RANGES GREATER THAN 100"	180	71

CONNECTION DIAGRAM



POSITIVE OUTPUT OCCURS WITH CABLE EXTENDING

FOOTNOTES TO SPECIFICATIONS
1. Supplemental Data section located at end of HX Series pages.

MODEL NUMBER CONFIGURATION

HX-V- 0 - 1 2 3 - 4 5 6 - 7 8 9

BASIC CONFIGURATION (FOR ALL RANGES)

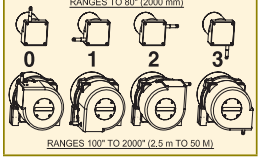
HX-V-50-S10-N0S-1BC

0 RANGE
Select Measurement Range From Supplemental Data Table 12 (next page), Insert Corresponding Measurement Range Designator

1 WIRE ROPE
S ..... Stainless Steel (See Supplemental Data, Table 12)
N ..... Ø.018 (0,45 mm) Nylon Jacketed Stainless Steel Ranges to 80" (2m) only. (formerly NJC)
J ..... Ø.037 (0,94 mm) Nylon Jacketed Stainless Steel Ranges 100" (2.5m) to 500" (12.7m) only.

2 WIRE ROPE TENSION
1 ..... Standard
2 ..... Reduced (Ranges to 80" only)

3 WIRE ROPE EXIT DIRECTION
Use Number designators shown



4 N .....Required Designator
5 0 .....Required Designator
6 S .....Required Designator

NOTES FOR OPTION BOXES 7, 8, and 9

IP-65 (NEMA 4): Transducer equipped with body mounted connector and with or without mating connector. Mating connector with electrical cable available separately as part number **10119-xM** where 'x' is length of electrical cable in meters.

IP-68 (NEMA 6): Transducer equipped with bulkhead fitting and length of electrical cable. Remote end of electrical cable may be outfitted with water proof connector. Mating connector with electrical cable available separately as part number **10424-xM** where 'x' is length of electrical cable in meters.

7 INGRESS PROTECTION
1 ..... IP-65 (NEMA 4)
2 ..... IP-68 (NEMA 6)
3 ..... IP-68 (NEMA 6) Corrosion Resistant Construction

8 IP-65–NEMA 4 CONNECTOR
B ..... 6 Pin 3102E Body Mounted Connector

IP-68–NEMA 6 ELECTRICAL CABLE
P ..... Bulkhead Fitting w/ 0.3m (12") Electrical Cable
3 ..... Bulkhead Fitting w/ 3m (10') Electrical Cable
4 ..... Bulkhead Fitting w/ 4m (13.5') Electrical Cable
5 ..... Bulkhead Fitting w/ 5m (16.5') Electrical Cable
6 ..... Bulkhead Fitting w/ 6m (20') Electrical Cable
7 ..... Bulkhead Fitting w/ 7m (23') Electrical Cable

9 IP-65–NEMA 4 MATING CONNECTOR
C ..... IP-65 Mating Connector Included
K ..... IP-65 Mating Connector Omitted*
*Electrical cable with mating connector may be ordered separately as part number **10119-xM** where 'x' is the length required in meters.

IP-68–NEMA 6 CABLE MOUNTED CONNECTOR
N ..... No connector on end of electrical cable
K ..... IP-68 Cable to cable connector with ***NO*** mating connector**
Electrical cable with mating connector may be ordered separately as part number **10424-xM where 'x' is the length required in meters. Mating connector alone unavailable.

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PM Instrumentation

HX-VP
Linear Velocity Position

UniMeasure

The **UniMeasure HX-VP Series** combines a self-generating tachometer and a precision potentiometer to give an output of both velocity and analog position. Standard position output is ratiometric voltage. Optionally available position outputs include ratiometric voltage from a bridge circuit, 4 to 20 mA, 0 to 10 VDC, and ±10 VDC. *See HX-PB, HX-P420 and HX-P510 data sheets for electrical specifications.*

SPECIFICATIONS

*FOR **HX-VPB**, **HX-VP420** AND **HX-VP510** SERIES SPECIFICATIONS, SEE **HX-PB**, **HX-P420**, AND **HX-P510** SERIES PAGES.*

GENERAL
- Available Measurement Ranges ..... See Supplemental Data[1], Table 12
- Connector MS3102A-14S-6P
- Mating Connector MS3106E-14S-6S

PERFORMANCE
- Positional Linearity ***(HX-VPA Only)***
  - 2", 3", 4" & 5" Ranges ..... ±0.25% Full Scale
  - 10" , 15", 20" & 25" Ranges ..... ±0.15% Full Scale
  - All other ranges ..... ±0.10% Full Scale
- Repeatability ..... ±0.015% Full Scale
- Positional Resolution ..... Essentially Infinite

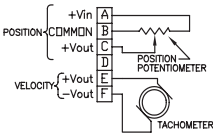
ENVIRONMENTAL
- Thermal Coeff of potentiometer .... ±100 PPM/°C max.
- Operating temperature ..... -40°C to +95°C
- Operating humidity 100%
- Vibration ..... 15 G's 0.1 ms max.
- Shock ..... 50 G's 0.1 ms max.

INGRESS PROTECTION (Exclusive of Wire Rope Area)
- Standard ..... IP-65 (NEMA 4)
- Optional ..... IP-68 (NEMA 6)

ELECTRICAL (Position)
- Input Impedance ("A" Circuit) ..... 1000Ω ±10%
- Output Impedance ("A" Circuit) ..... 0 to 1000Ω
- Excitation Voltage ..... 30 Volts Max. AC or DC
- Output Voltage Change Over Full Range of Transducer ..... 92% to 98% of Excitation Voltage

ELECTRICAL (Velocity)
- Output ..... See Table 11
- Linearity ..... ±0.10% F.S. with 10 VDC Max Output
- Ripple ..... 3% Max.
- Output Impedance 350Ω

CONNECTION DIAGRAM



POSITIVE OUTPUT OCCURS WITH CABLE EXTENDING

TABLE 11—VELOCITY OUTPUT

MEASUREMENT RANGE	VELOCITY OUTPUT mV/in/sec	mV/cm/sec
2, 10	200	78
3, 15, 30	136	53
4, 20, 40	103	40
5, 25, 50	82	32
6, 60	69	27
80	52	20
100	180	71
ALL RANGES GREATER THAN 100"	180	71

FOOTNOTES TO SPECIFICATIONS
1. Supplemental Data section located at end of HX Series pages.

MODEL NUMBER CONFIGURATION

HX-VP E - 0 - I 2 3 - 4 5 6 - 7 8 9

BASIC CONFIGURATION (FOR ALL RANGES)
HX-VPA-50-S10-N1S-1BC

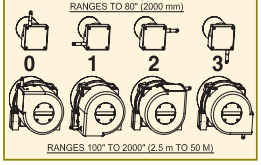
E ELECTRICAL OUTPUT
POSITION ELECTRICAL OUTPUT
- **A**.....Voltage Divider Circuit
- **B**.....Bridge Circuit
- **420**.....4 to 20 mA
- **510**.....0 to 10 VDC

0 RANGE
Select Measurement Range From Supplemental Data Table 12, page 12 (next page), Insert Corresponding Measurement Range Designator

I WIRE ROPE
- **S**..... Stainless Steel (See Supplemental Data, Table 12)
- **N**..... Ø.018 (0,45 mm) Nylon Jacketed Stainless Steel Ranges to 80" (2m) only. (formerly NJC)
- **J**..... Ø.037 (0,94 mm) Nylon Jacketed Stainless Steel Ranges 100" (2.5m) to 500" (12.7m) only.

2 WIRE ROPE TENSION
- **1**..... Standard
- **2**..... Reduced (Ranges to 80" only)

3 WIRE ROPE EXIT DIRECTION
Use Number designators shown



4
- **N**.....Required Designator

5 POTENTIOMETER VALUE

VPB, VP420, VP510	**0**.....Required Designator
VPA	**1**.....1KΩ
	3.....5KΩ*
	4.....10KΩ*

**Not Available Ranges 2" to 6"*
SEE SUPPLEMENTAL DATA FOR LINEARITY OPTION

6 ELECTRICAL OUTPUT POLARITY
- **S**.....Standard (increasing output as wire rope is extended)
- **R**.....Reversed (decreasing output as wire rope is extended)

NOTES FOR OPTION BOXES 7, 8, and 9

IP-65 (NEMA 4): Transducer equipped with body mounted connector and with or without mating connector. Mating connector with electrical cable available separately as part number **10119-xM** where 'x' is length of electrical cable in meters.

IP-68 (NEMA 6): Transducer equipped with bulkhead fitting and length of electrical cable. Remote end of electrical cable may be outfitted with water proof connector. Mating connector with electrical cable available separately as part number **10424-xM** where 'x' is length of electrical cable in meters.

7 INGRESS PROTECTION
- **1**..... IP-65 (NEMA 4)
- **2**..... IP-68 (NEMA 6)
- **3**..... IP-68 (NEMA 6) Corrosion Resistant Construction

8 IP-65–NEMA 4 CONNECTOR
- **B**..... 6 Pin 3102E Body Mounted Connector

IP-68–NEMA 6 ELECTRICAL CABLE
- **P**..... Bulkhead Fitting w/ 0.3m (12") Electrical Cable
- **3**..... Bulkhead Fitting w/ 3m (10') Electrical Cable
- **4**..... Bulkhead Fitting w/ 4m (13.5') Electrical Cable
- **5**..... Bulkhead Fitting w/ 5m (16.5') Electrical Cable
- **6**..... Bulkhead Fitting w/ 6m (20') Electrical Cable
- **7**..... Bulkhead Fitting w/ 7m (23') Electrical Cable

9 IP-65–NEMA 4 MATING CONNECTOR
- **C**..... IP-65 Mating Connector Included
- **K**..... IP-65 Mating Connector Omitted*

*Electrical cable with mating connector may be ordered separately as part number **10119-xM** where 'x' is the length required in meters.

IP-68–NEMA 6 CABLE MOUNTED CONNECTOR
- **N**..... No connector on end of electrical cable
- **K**..... IP-68 Cable to cable connector with ***NO*** mating connector**

Electrical cable with mating connector may be ordered separately as part number **10424-xM where 'x' is the length required in meters. Mating connector alone unavailable.

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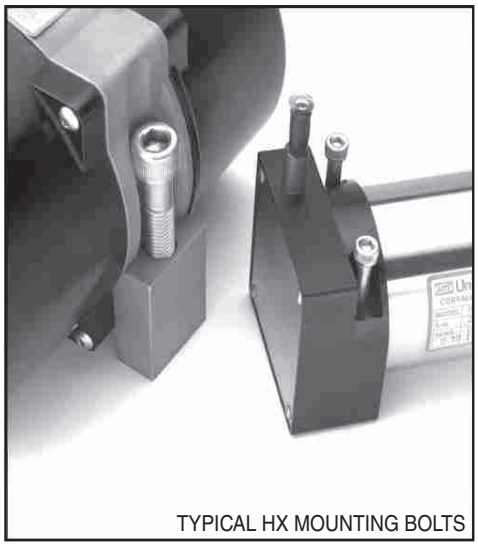
PM Instrumentation

HX-VP
Linear Velocity Position

MECHANICAL SPECIFICATIONS



TYPICAL HX MOUNTING BOLTS

AVAILABLE MEASUREMENT RANGES .... See Table 12

CONSTRUCTION

Ranges 80" (2 m) and under	Anodized Aluminum Mounting Base Stainless Steel & Anodized Aluminum Housing
Ranges 100" (2.5 m) and greater	Stainless Steel Mounting Base High Impact, Corrosion Resistant Thermoplastic Housings
Wire Rope Tension	See Table 12
Wire Rope Diameter	See Table 12
Weight	See Table 12
Connector	MS3102A-14S-6P
Mating Connector	MS3106E-14S-6S
Optional NEMA 6 Capability	Bulkhead fitting with shielded twisted pair cable

Life[1]

Ranges 2" to 6"	5,000,000 full stroke cycles
Ranges 10" to 25"	500,000 full stroke cycles
Ranges 30" to 400"	250,000 full stroke cycles
Ranges 500" to 2000"	200x10^6 lineal inches

NOTES:
1. With 1K ohm potentiometer, wire rope misalignment 2° maximum at full stroke, relatively dust free environment, nylon jacketed wire rope on units with ranges 80" and less.

TABLE 12

Use value from this column to indicate overall measurement range

Check mark indicates available measurement range

MEASUREMENT RANGE DESIGNATOR	STANDARD MEASUREMENT RANGES (in)	STANDARD MEASUREMENT RANGES (mm)	APPLICABLE SERIES: HX-PA HX-PB HX-P420 HX-P510	APPLICABLE SERIES: HX-EP	APPLICABLE SERIES: HX-V HX-VP	WIRE ROPE TENSION (NOMINAL) (oz)	WIRE ROPE TENSION (NOMINAL) (N)	WIRE ROPE DIAMETER (in)	WIRE ROPE DIAMETER (mm)	TRANSDUCER WEIGHT (lb)	TRANSDUCER WEIGHT (Kg)	Product Photo
2	2	50	✔	-	✔	34	9.4	.016	0.4	2	0.9	
3	3	75	✔	-	✔	24	6.7	.016	0.4	2	0.9	
4	4	100	✔	-	✔	24	6.7	.016	0.4	2	0.9	
5	5	125	✔	-	✔	19	5.3	.016	0.4	2	0.9	
6	6	150	✔	-	✔	24	6.7	.016	0.4	2	0.9	
10	10	250	✔	✔	✔	34	9.4	.016	0.4	2	0.9	
15	15	390	✔	-	✔	24	6.7	.016	0.4	2	0.9	
20	20	500	✔	-	✔	24	6.7	.016	0.4	2	0.9	
25	25	640	✔	✔	✔	19	5.3	.016	0.4	2	0.9	
30	30	750	✔	-	✔	24	6.7	.016	0.4	2	0.9	
40	40	1000	✔	-	✔	24	6.7	.016	0.4	2	0.9	
50	50	1250	✔	✔	✔	19	5.3	.016	0.4	2	0.9	
60	60	1500	✔	✔	✔	24	6.7	.016	0.4	2	0.9	
80	80	2.0m	✔	✔	✔	21	5.8	.016	0.4	2	0.9	
100	100	2.5m	✔	✔	✔	36	10.0	.024	0.6	6.8	3.1	
120	120	3.0m	✔	✔	✔	36	10.0	.024	0.6	6.8	3.1	
150	150	3.8m	✔	✔	✔	36	10.0	.024	0.6	6.8	3.1	
200	200	5.0m	✔	✔	✔	36	10.0	.024	0.6	6.8	3.1	
250	250	6.3m	✔	✔	✔	36	10.0	.024	0.6	6.8	3.1	
300	300	7.5m	✔	✔	✔	36	10.0	.024	0.6	6.8	3.1	
350	350	8.8m	✔	✔	✔	36	10.0	.024	0.6	6.8	3.1	
400	400	10.0m	✔	✔	✔	36	10.0	.024	0.6	6.8	3.1	
500	500	12.5m	✔	✔	✔	36	10.0	.024	0.6	8.6	3.9	
600	600	15.2m	✔	✔	✔	36	10.0	.024	0.6	8.6	3.9	
800	800	20.3m	✔	✔	✔	36	10.0	.024	0.6	8.6	3.9	
1000	1000	25.4m	✔	✔	-	36	10.0	.024	0.6	12.0	5.4	
1200	1200	30.4m	✔	✔	-	36	10.0	.024	0.6	12.3	5.6	
1600	1600	40.6m	✔	✔	-	36	10.0	.024	0.6	14.1	6.4	
1800	1800	45.7m	✔	✔	-	36	10.0	.021	0.6	15.9	7.2	
2000	2000	50.8m	✔	✔	-	36	10.0	.021	0.5	16.3	7.4	

Specifications subject to change without notice

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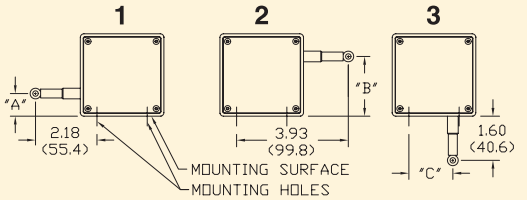
PM Instrumentation

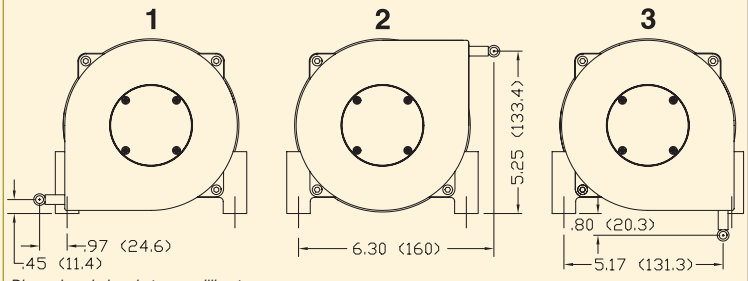
HX-VP
Linear Velocity Position

OPTION DESCRIPTIONS

OPTION	OPTION DESIGNATOR	DESCRIPTION
NYLON JACKETED WIRE ROPE *RANGES TO 80" ONLY*	**N**	Replaces standard stainless steel wire rope with Ø.018 nylon jacketed wire rope. This option increases wire rope life dramatically but may increase non-linearity by as much as ±.05% of full scale.
NYLON JACKETED WIRE ROPE *RANGES 100" TO 500" ONLY*	**J**	Replaces standard stainless steel wire rope with Ø.037 nylon jacketed wire rope.
ALTERNATE WIRE ROPE EXIT *RANGES TO 80" (2.0 m)*	**1, 2, 3**	

RANGE	"A"	"B"	"C"
2", 10"	1.12 (28.4)	1.79 (45.5)	1.21 (30.7)
3", 15", 30"	.96(24.4)	1.95 (49.5)	1.37 (34.8)
4", 20", 40"	.80 (20.3)	2.11 (53.6)	1.53 (38.9)
5", 25", 50"	.64 (16.3)	2.27 (57.7)	1.69 (42.9)
6", 60"	.49 (12.4)	2.42 (61.5)	1.84 (46.7)
80"	.25 (6.4)	2.66 (67.6)	2.08 (52.8)

Dimensions in brackets are millimeters

ALTERNATE WIRE ROPE EXIT *RANGES 100" (2.5 m) and GREATER*	**1, 2, 3**	

Dimensions in brackets are millimeters

NON-STANDARD POTENTIOMETER *APPLIES TO HX-PA & HX-VPA ONLY*	**3, 4**	Non-standard potentiometer linearity is as follows: 5" and Below: ±1.00% of full scale 10" to 25": ±0.50% of full scale 30" and above: ±0.25% of full scale ***Note:*** *This option is subject to potentiometer availability.*
REVERSED OUTPUT	**R**	Output is at a maximum when wire rope is fully retracted. Output decreases as wire rope is extended. Does not apply to velocity signal.
IP-68, (NEMA 6) CAPABILITY	**2**	 Connector is replaced with a bulkhead fitting and a designated length of urethane jacketed, shielded, twisted pair cable. Retraction mechanism and electrical components are sealed to IP-68, (NEMA 6) capability.
CORROSION RESISTANT CONSTRUCTION	**3**	All external anodized aluminum parts of transducer are replaced with stainless steel and corrosion resistant plastic. Transducer is sealed to IP-68 (NEMA 6) capability. Urethane jacketed, shielded, twisted pair cable exits unit. No connector on unit. 

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DIMENSIONAL INFORMATION

HX SERIES – RANGES TO 80" (2 m)

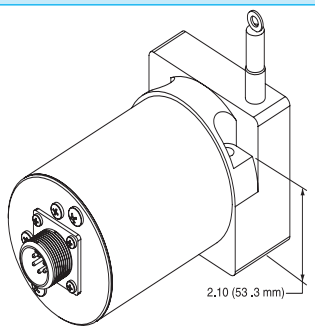


FIG. 1

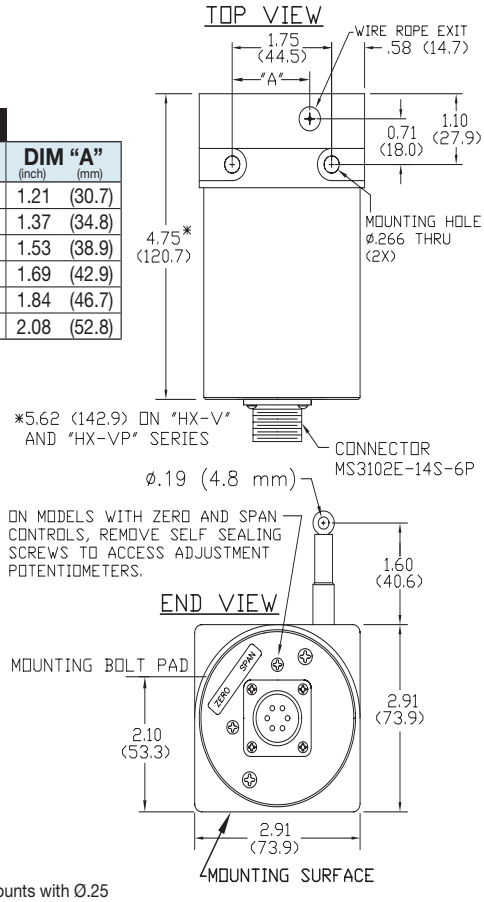


TABLE 13

RANGE	DIM "A" (inch)	DIM "A" (mm)
2", 10"	1.21	(30.7)
3", 15", 30"	1.37	(34.8)
4", 20", 40"	1.53	(38.9)
5", 25", 50"	1.69	(42.9)
6", 60"	1.84	(46.7)
80"	2.08	(52.8)

NOTES:

1. Transducer mounts with Ø.25 or M6 Socket head cap bolts.

Dimensions in brackets are millimeters

TABLE 14

RANGE	DIM "A" (inch)	DIM "A" (mm)	DIM "B" (inch)	DIM "B" (mm)
Ranges to 800"	7.70	(196)	3.80	(97)
1000" to 2000"	11.0	(280)	5.60	(142)

HX SERIES – RANGES GREATER THAN 80" (2 m)

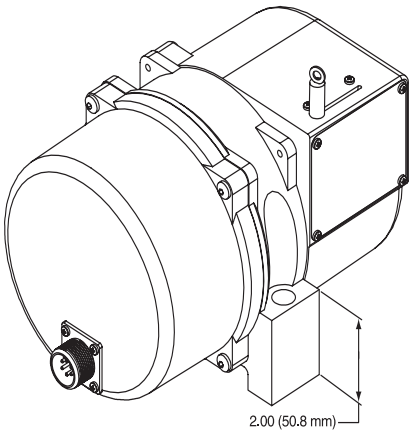
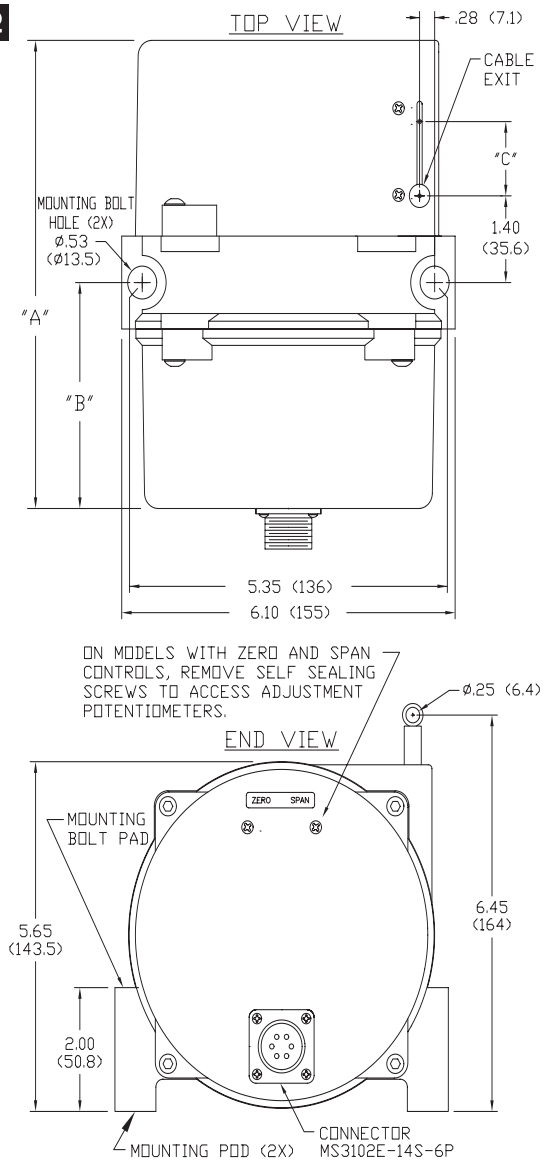


FIG. 2



Dimensions in brackets are millimeters