

HX-P420 SERIES

4 to 20 mA OUTPUT



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 12 to 35 VDC subject to the total loop resistance.

SPECIFICATIONS

General

Available Measurement Ranges..... See Table 12, Page 34
 Connector MS3102E-14S-6P
 Mating Connector (included) MS3106E-14S-6S

Performance

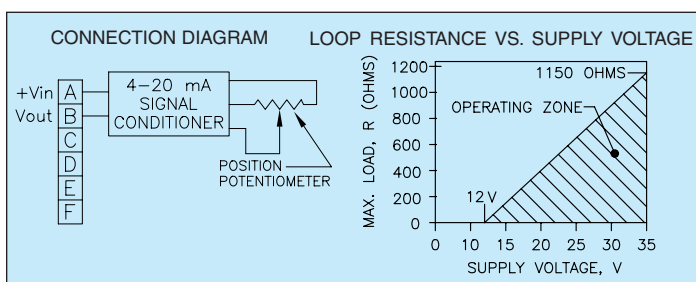
Linearity
 2", 3", 4", 5" & 6" Ranges ±0.30% Full Scale
 10", 15", 20" & 25" Ranges..... ±0.20% Full Scale
 All other ranges ±0.15% Full Scale
 Repeatability ±0.015% Full Scale
 Resolution Essentially Infinite

Electrical

Output..... User Adjustable 4 to 20 mA
 Excitation Voltage..... 12 to 35 VDC
 Min. Supply Voltage (.02 x Load Res.) + 12 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

Environmental

Thermal Coefficient of sensing element..... ±100 PPM/°C max.
 Operating temperature -25°C to 80°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..... NEMA 4 (IP-65)
 Optional Ingress Protection NEMA 6 (IP-68)



See Page 36 for Dimensional Information

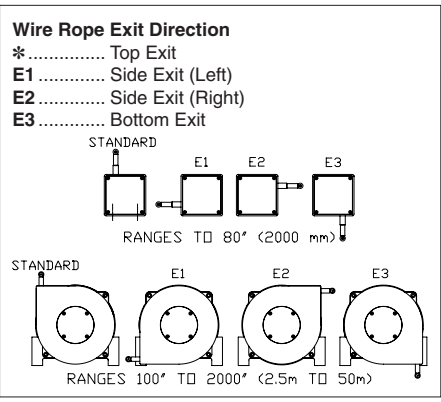
Range
 Select measurement range from Table 12, Page 34. Insert corresponding Measurement Range Designator

Model Number Configuration

HX-P420- - - - -

Wire Rope
 * Stainless Steel (See Table 12, Page 3)
NJC Ø.018 (0,45 mm) Nylon Jacketed Stainless Steel (Ranges to 80" only)
NJC037 . Ø.037 (0,94 mm) Nylon Jacketed Stainless Steel (Ranges 100" and greater only)

Wire Rope Tension
 * Standard
004 Reduced (Ranges to 50" only)



Housing
 * NEMA 4 (IP-65) Aluminum
N6 NEMA 6 (IP-68) Aluminum
SS NEMA 6 (IP-68) Corrosion Resistant Stainless Steel and Non-Metallic Construction

Electrical Interface
 * Mating Connector Included (See note 1 below)
L3M 3 m (10') electrical cable (See note 2 below)
L4M 4 m (13.5') electrical cable (See note 2 below)
L5M 5 m (16.5') electrical cable (See note 2 below)
L6M 6 m (20') electrical cable (See note 2 below)
L7M 7 m (23') electrical cable (See note 2 below)
 1. Applies to NEMA 4 Housing option only. Does not apply to N6 or SS Housing options.
 2. Select one of options L3M through L7M when electrical cable is required with mating connector when Housing option NEMA 4 is also selected. Select one of options L3M through L7M when Housing option N6 or SS is selected. Connector is **not** available with Housing option N6 or SS.

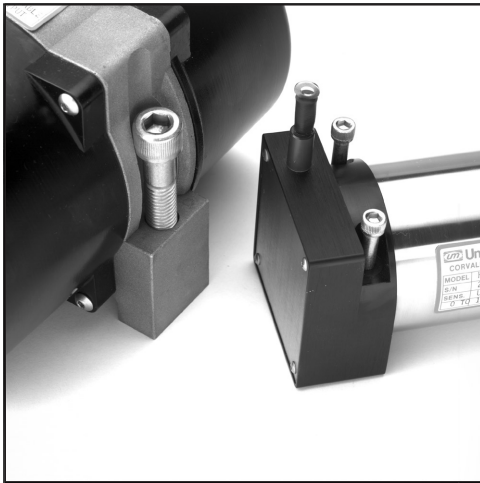
Electrical Output Polarity
 * Standard (increasing output as wire rope is extended)
R Reversed (decreasing output as wire rope is extended)

NOTE
 1) *—Asterisk items are standard configuration. No option designator is required.
 2) Shaded options available at additional cost.
 3) See Page 35 for a description of options

Example
HX-P420-50-NJC-004-L7M

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MECHANICAL SPECIFICATIONS



Typical HX mounting bolts.

SPECIFICATIONS

Mechanical Specifications

- 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 Polyurethane Housings
- Wire Rope Tension See Table 12
- Wire Rope Diameter..... See Table 12
- Weight See Table 12
- Connector..... MS3102A-14S-6P
- Mating Connector (included) MS3106E-14S-6S
- Optional NEMA 6 Capability Bulkhead fitting with shielded, twisted pair cable

TABLE 12

Use value from this column to indicate overall measurement range

Check mark indicates available measurement range



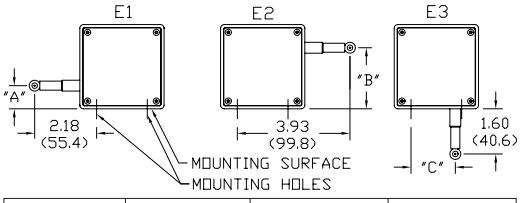
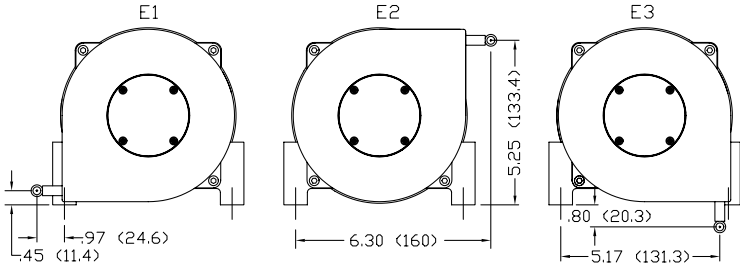
MEASUREMENT RANGE DESIGNATOR	STANDARD MEASUREMENT RANGES		APPLICABLE SERIES			WIRE ROPE TENSION (NOMINAL)		WIRE ROPE DIAMETER		WEIGHT	
	(in)	(mm)	HX-PA HX-PB HX-P420 HX-P510 HX-P1010	HX-EP	HX-V HX-VP	(oz)	(N)	(in)	(mm)	(lb)	(Kg)
2	2	50	✓	-	✓	34	9.4	.016	0.4	2	0.9
3	3	75	✓	-	✓	24	6.7	.016	0.4	2	0.9
4	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.

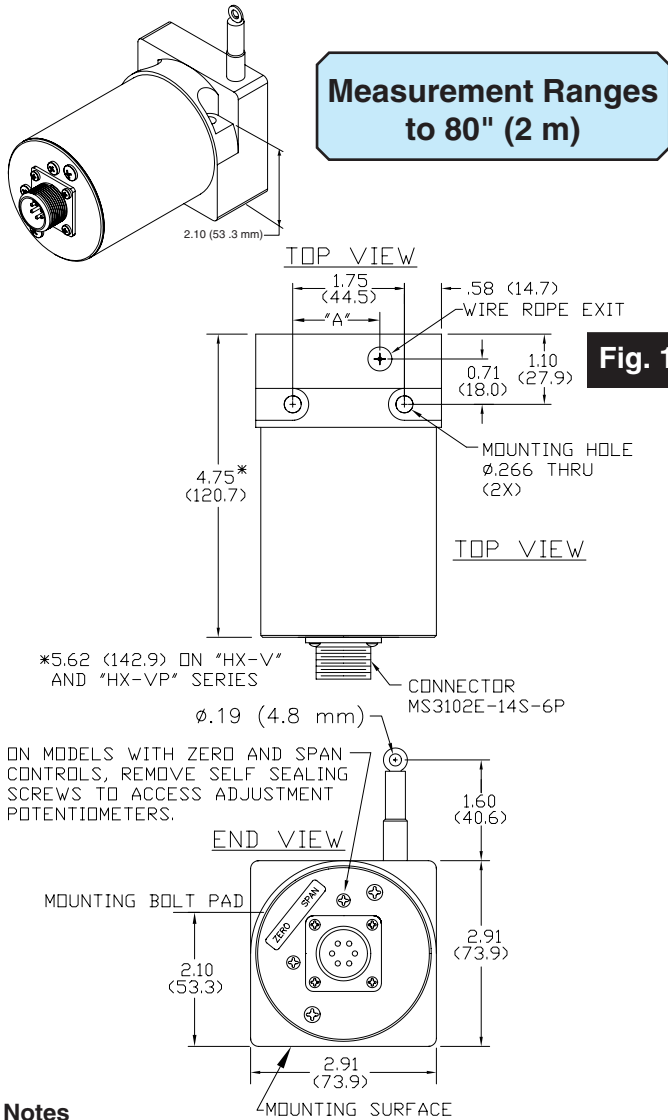
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OPTION DESCRIPTION

OPTION	OPTION DESIGNATOR	DESCRIPTION																												
Nylon jacketed wire rope (Ranges to 80" only)	NJC	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)	NJC037	Replaces standard stainless steel wire rope with Ø.037 nylon jacketed wire rope.																												
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.																												
NEMA 6, IP-68 capability	N6	 <p>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 NEMA 6, IP-68 capability. No connector.</p>																												
Stainless steel construction (Ranges to 80" only)	SS	<p>All external anodized aluminum parts of transducer are replaced with stainless steel and corrosion resistant plastic. Transducer is sealed to NEMA 6, IP-68 capability. Urethane jacketed, shielded, twisted pair cable exits unit. No connector.</p> 																												
Non-standard potentiometer (Applies to HX-PA only)	PXK	<p>Replace "X" in option designator with required potentiometer value in K ohms. Non-standard potentiometer linearity is as follows:</p> <p>Ranges 0 to 2" to 0 to 5" ±1.00% of full scale Ranges 0 to 10" to 0 to 25" ±0.50% of full scale Ranges 30" and above ±0.25% of full scale</p> <p>Note: This option is subject to potentiometer availability.</p>																												
Alternate wire rope exit Measurement ranges to 80" (2.0 m)	E1, E2, E3	 <table border="1" data-bbox="656 1472 1166 1696"> <thead> <tr> <th>RANGE</th> <th>"A"</th> <th>"B"</th> <th>"C"</th> </tr> </thead> <tbody> <tr> <td>2", 10"</td> <td>1.12 (28.4)</td> <td>1.79 (45.5)</td> <td>1.21 (30.7)</td> </tr> <tr> <td>3", 15", 30"</td> <td>.96(24.4)</td> <td>1.95 (49.5)</td> <td>1.37 (34.8)</td> </tr> <tr> <td>4", 20", 40"</td> <td>.80 (20.3)</td> <td>2.11 (53.6)</td> <td>1.53 (38.9)</td> </tr> <tr> <td>5", 25", 50"</td> <td>.64 (16.3)</td> <td>2.27 (57.7)</td> <td>1.69 (42.9)</td> </tr> <tr> <td>60"</td> <td>.49 (12.4)</td> <td>2.42 (61.5)</td> <td>1.84 (46.7)</td> </tr> <tr> <td>80"</td> <td>.25 (6.4)</td> <td>2.66 (67.6)</td> <td>2.08 (52.8)</td> </tr> </tbody> </table> <p style="text-align: right;">Dimensions in brackets are millimeters.</p>	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)	60"	.49 (12.4)	2.42 (61.5)	1.84 (46.7)	80"	.25 (6.4)	2.66 (67.6)	2.08 (52.8)
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Alternate wire rope exit Measurement ranges 100" (2.5 m) and greater.	E1, E2, E3	 <p style="text-align: center;">Dimensions in brackets are millimeters.</p>																												

HX

DIMENSIONAL INFORMATION



Notes

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

Table 13

RANGE	"A"
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)
60"	1.84 (46.7)
80"	2.08 (52.8)

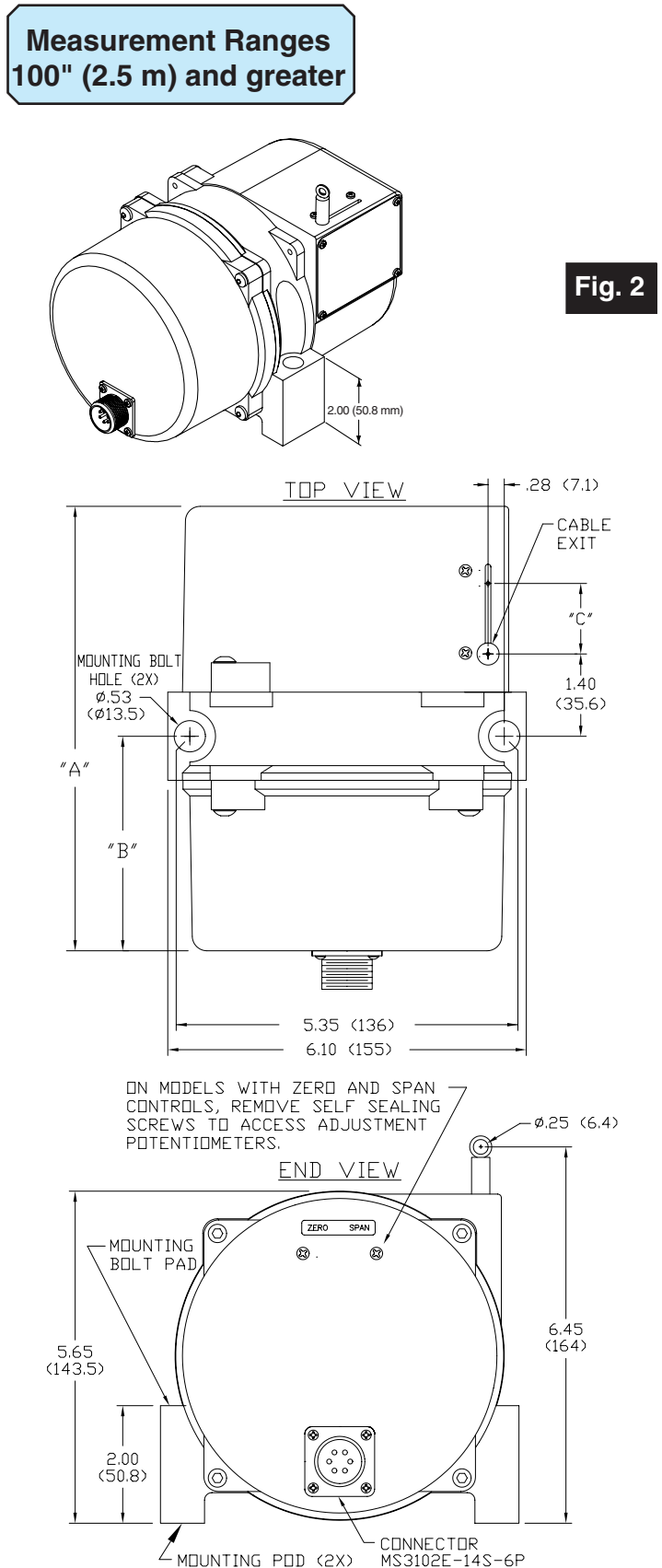
Table 14

RANGE	DIM "A"	DIM "B"
Ranges to 800"	7.70 (19.6)	3.80 (96.5)
1000" to 2000"	11.0 (280.0)	5.60 (142.0)

Notes

1. Transducer mounts with Ø.50 or M12 socket head cap bolts.
 2. Dimension "C" is the cable offset that occurs as the cable is extended from the transducer.

For "C" in inches, $C = .0016 \times E$ where E = extension in inches.
 For "C" in millimeters, $C = .0016 \times E$ where E = extension in mm.



Dimensions in brackets are millimeters.

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