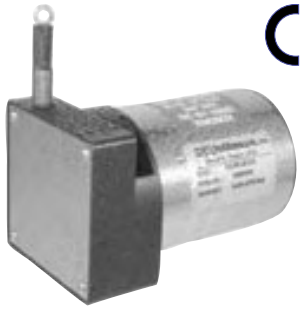
HX-PB SERIES
BRIDGE CIRCUIT VOLTAGE OUTPUT



The 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

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 .....±0.25% Full Scale
10", 15", 20" & 25".....±0.15% Full Scale
All other ranges .....±0.10% Full Scale
Repeatability .....±0.015% Full Scale
Resolution .....Essentially Infinite

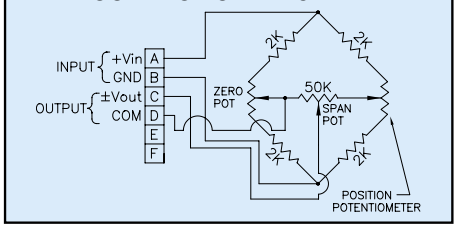
Electrical

Input Impedance 1.25KΩ
Output Impedance .....1.25KΩ at max span setting
14.4KΩ @ 51% max. span setting
Excitation Voltage.....25 Volts Max. AC or DC
Output Voltage .....User adjustable to a maximum of 18% of Input Voltage

Environmental

Thermal Coefficient of Sensing Element ..... ±100 PPM/°C Max.
Operating Temperature ..... -40°C to +95°C
Operating Humidity 100%
Shock ..... 50 G @ 0.1 ms Max.
Vibration..... 10 Hz to 2000 Hz, 15 G peak
Ingress Protection
Exclusive of Wire Rope Area NEMA 4 (IP-65)
Optional Ingress Protection..... NEMA 6 (IP-68)

CONNECTION DIAGRAM



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

Model Number Configuration

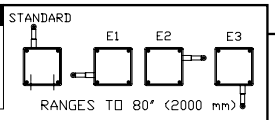
HX-PB-__ - __ - __ - __ - __ - __ - __

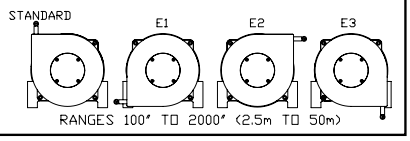
Range
Select measurement range from Supplemental Data, Table 12, Insert corresponding Measurement Range Designator

Wire Rope
✻.....Stainless Steel (See Supplemental Data, Table 12)
NJC .....Ø.018 (0,45 mm) Nylon Jacketed Stainless Steel Ranges to 80" (2m) only.
NJC037 .....Ø.037 (0,94 mm) Nylon Jacketed Stainless Steel Ranges 100" (2.5m) to 500" (12.7m) only.

Wire Rope Tension
✻..... Standard
004..... Reduced (Ranges to 80" only)

Wire Rope Exit Direction
✻..... Top Exit
E1 ..... Side Exit (Left)
E2 ..... Side Exit (Right)
E3 ..... Bottom Exit





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.

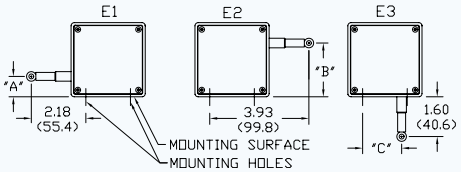
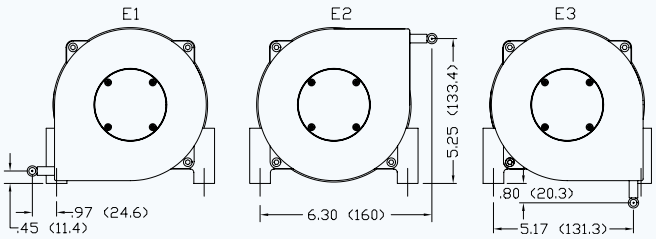
Electrical Output Polarity
✻..... Standard (increasing output as wire rope is extended)
R..... Reversed (decreasing output as wire rope is extended)

NOTE
1) ✻—Asterisk items are standard configuration. No option designator is required.
2) Shaded options available at additional cost.
3) See Supplemental Data for options.

Example
HX-PB-50-N6-R

HX SERIES
SUPPLEMENTAL DATA

ADDITIONAL OPTIONS

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**	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.
Corrosion Resistant Construction	**SS**	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.
Non-standard potentiometer (Applies to HX-PA only)	**PXK**	Replace "X" in option designator with required potentiometer value in K ohms. Non-standard potentiometer linearity is as follows: 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 Note: This option is subject to potentiometer availability.
Alternate wire rope exit Measurement ranges to 80" (2.0 m)	**E1, E2, E3**	
Alternate wire rope exit Measurement ranges 100" (2.5 m) and greater.	**E1, E2, E3**	 Dimensions in brackets are millimeters.

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.

Specifications subject to change without notice.

HX SERIES
SUPPLEMENTAL DATA

Typical HX mounting bolts.

MECHANICAL 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 Thermoplastic 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
Life*
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

* 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 over-all 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 HX-P1010	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.

HX SERIES
SUPPLEMENTAL DATA

CE

DIMENSIONAL INFORMATION

All Measurement Ranges 80" (2 m) or Less

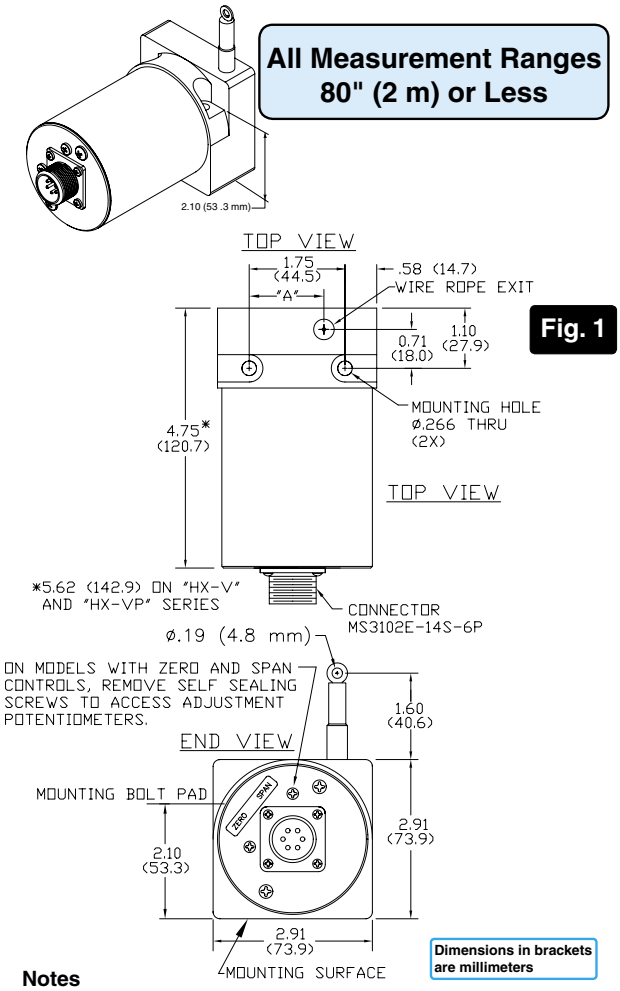


Fig. 1

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 (196)	3.80 (97)
1000" to 2000"	11.0 (280)	5.60 (142)

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 x E where E = extension in inches.
For "C" in millimeters, C = .0016 x E where E = extension in mm.

All Measurement Ranges Greater than 80" (2 m)

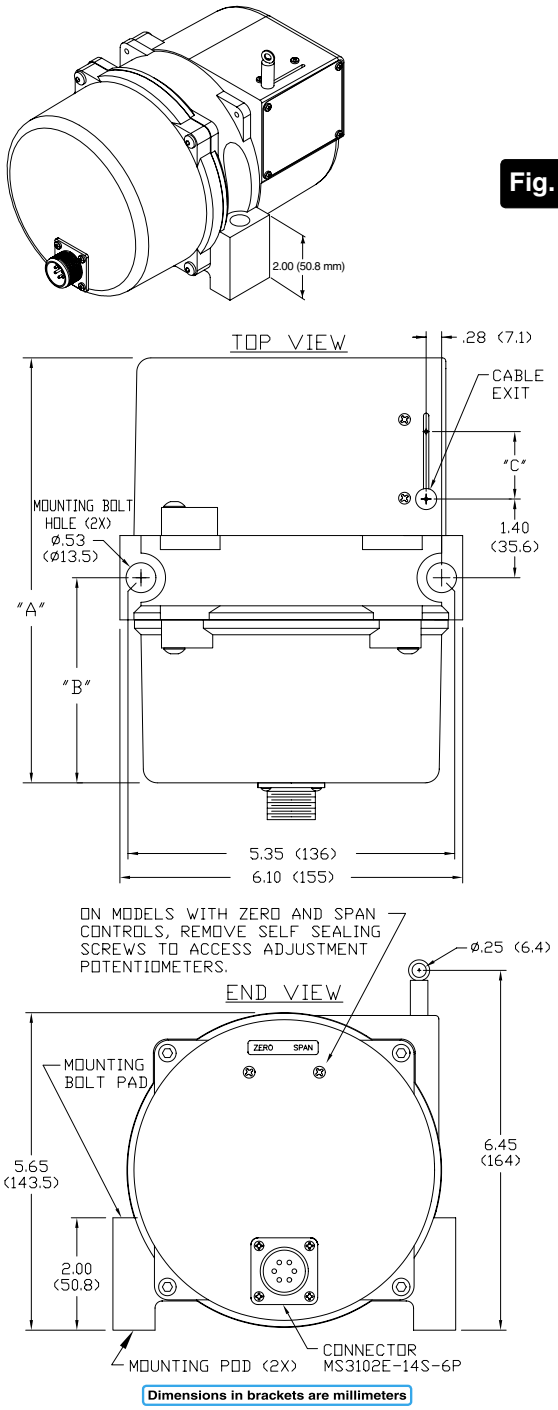


Fig. 2

Specifications subject to change without notice.

PEWATRON
a member of the Angst + Pfister Group

We are here for you. Addresses and Contacts

Sales Switzerland

Postcode 3000 – 9999
Liechtenstein

Matthias Rüegg
Ruhbergstrasse 32
CH-9230 Flawil

Phone + 41 44 877 35 18
Mobile + 41 76 491 66 66
Fax + 41 44 877 35 19

matthias.rueegg@pewatron.com

Postcode 1000 – 2999

Raffael Favaretto
Route d'Oron 124
CH-1673 Promasens

Phone + 41 44 877 35 22
Mobile + 41 76 444 63 14
Fax + 41 44 877 35 23

raffael.favaretto@pewatron.com

Sales Germany

Postcode 60000 – 79999

Dieter Hirthe
Mühlweg 23
D-71554 Weissach i.T.

Phone + 49 719 149 60 58
Mobile + 49 163 762 74 30
Fax + 49 719 193 31 88

dieter.hirthe@pewatron.com

Postcode 10000 – 59999
Postcode 80000 – 99999

Kurt Stritzelberger
Neumarkter Str. 86a
D-81673 Munich

Phone + 49 89 260 38 47
Mobile + 49 171 803 41 35
Fax + 49 89 43 10 91 91

kurt.stritzelberger@pewatron.com

Key Accounts
Aerospace and Defence

Claus Wübbena
Vogelkamp 26
D-26655 Westerstede

Phone + 49 4488 5204 614
Mobile + 49 173 9700 691
Fax + 49 4488 5204 616

claus.wuebbena@pewatron.com

Sales Austria

Kurt Stritzelberger
Neumarkter Str. 86a
D-81673 Munich

Phone + 49 89 260 38 47
Mobile + 49 17 18 03 41 35
Fax + 49 89 43 10 91 91

kurt.stritzelberger@pewatron.com

Sales Other Countries / Product Management

Sensors

Physical Sensors
Data Acquisition

Peter Felder
Phone + 41 44 877 35 05
peter.felder@pewatron.com

Geometrical Sensors

Eric Letsch
Phone + 41 44 877 35 14
eric.letsch@pewatron.com

Power Supplies

DC-DC Converters
Switching Power Supplies
DC-AC Inverters

Sebastiano Leggio
Phone + 41 44 877 35 06
sebastiano.leggio@pewatron.com

E-Components

Current Sensors
Man Machine Interface
Measurement Probes

Sebastiano Leggio
Phone + 41 44 877 35 06
sebastiano.leggio@pewatron.com

PEWATRON AG
Thurgauerstrasse 66
CH-8052 Zurich

Phone + 41 44 877 35 00
Fax + 41 44 877 35 25

www.pewatron.com
info@pewatron.com