

Model A906 “Little Dipper” IPI

The model A906 “Little Dipper” is a precision, low-cost In-Place Inclinator (IPI) system for monitoring slopes, retaining walls, embankments, ground subsidence and settlement, and more. Units install easily in standard inclinometer casings, or can be grouted or buried directly into place. All A906 IPI’s are pressure rated to +72 psi. With ± 2.5 and 0-5 VDC output units also easily connect to any voltage input datalogger. The A906 is configurable for use for use in both vertical and horizontal boreholes. Units ship standard with 3m cable (specify additional cable length on order).



	High-Gain	Standard	Wide-angle
Angular range	$\pm 12^\circ$	$\pm 30^\circ$	$\pm 50^\circ$
Resolution (1)	$<0.005^\circ$	$<0.01^\circ$	$<0.02^\circ$
Repeatability	0.01°	0.02°	0.02°
Scale factor (2)	$4^\circ/\text{V}$	$10^\circ/\text{V}$	$25^\circ/\text{V}$
Non-linearity (3)	0.8% (full span)	1% (half span); 4% (full span)	7%
Output Voltage	$\pm 2.5\text{V}$ or 0-5V		
Channels	X-tilt, Y-tilt, Temperature		
Kz Coefficient (deg/C)	$\pm 5 \text{ arcsec}/\text{C}$ (typical)		
Ks Coefficient (%/C)	$\pm 0.03\%/ \text{C}$ (typical)		
Time Constant	0.15 sec		
Natural Frequency	10 Hz		
Power	+8 to +24 VDC; 7mA, 250 mV ripple max, reverse polarity protected		
Environmental	-25 to +70 C; Submersible to 72psi (5 bar); 100% humidity (non-condensing)		
Dimensions	231 x 39 mm (9.25 x 1.55 in.), 0.35kg (0.75 lb.)		
Materials	Cylindrical ABS housing, Delrin (guide fins)		
Cable	6-conductor, 24 AWG, PVC jacket, polypropylene insulation, overall shield, 0.2 in. (5mm) dia., 3m cable included. For additional cable length, please specify on order (price per ft.)		

*Specifications subject to change without notice on account of continued development;

(1) Resolution calculated at 1mV;

(2) Linear scale factor calculated from BFSI through calibration curve;

(3) Linearity calculated as max % deviation from BFSI. 0.05% linearity achievable using a polynomial

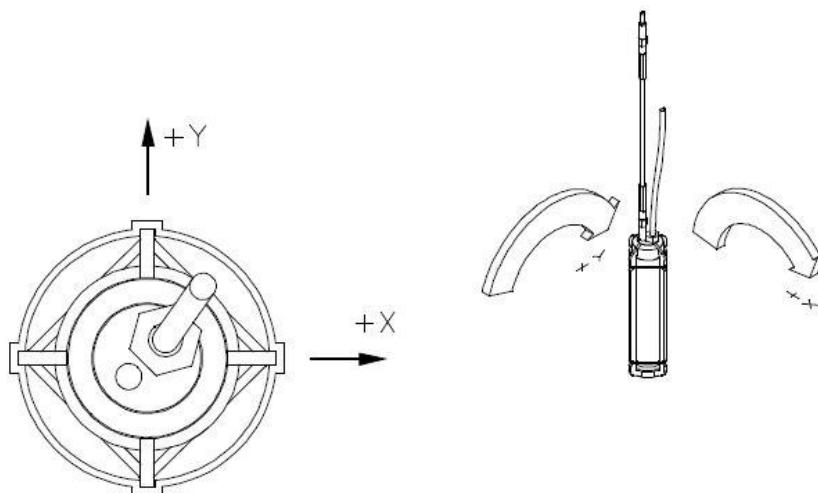
The Little Dipper is most commonly installed in shallow boreholes, generally at depths less than 150 feet (45m) for purposes of monitoring ground movement. They can also be installed in concrete block walls, caissons and cast into concrete slabs for tracing of structural deformation.

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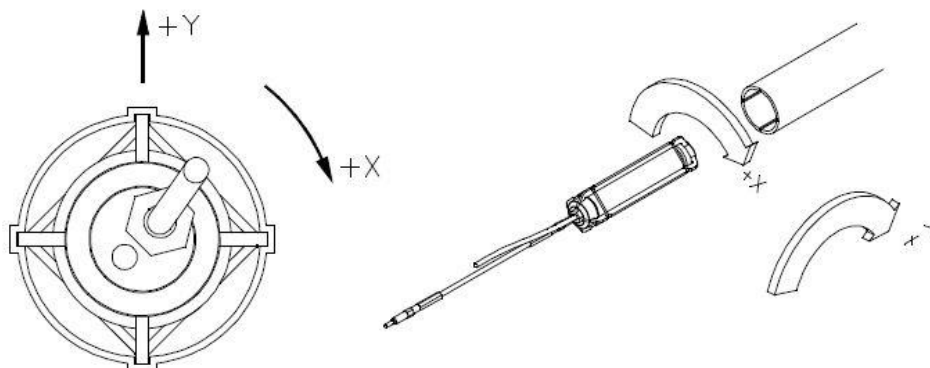
Pin Out/Wiring:

Color	Function
Red	+8 to +24 VDC
Black	Power Ground
Green	X-Out
Blue	Y-Out
Yellow	Temp Out
White	Signal Ground

Tilt



Placement of Little Dipper Model 906-V in vertical casing

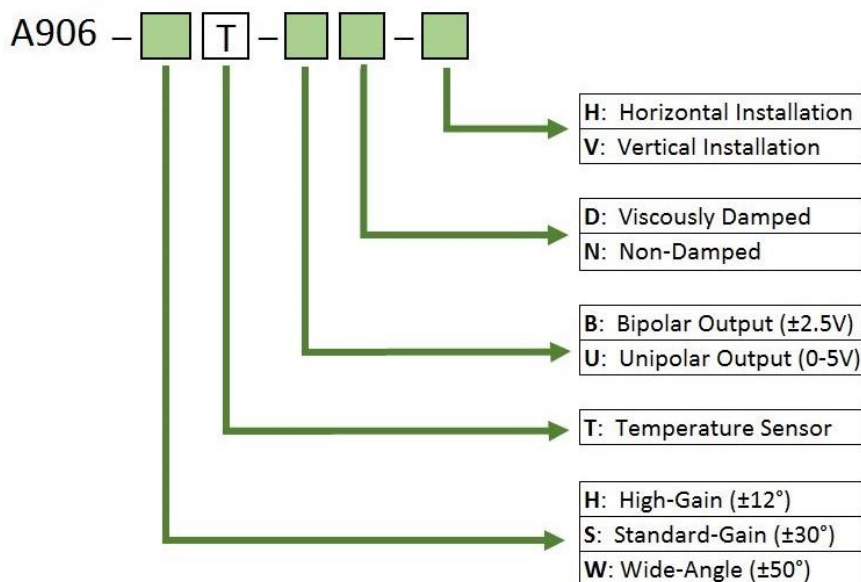


Placement of Little Dipper Model 906-H in horizontal casing

Orientation:

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How to Order:



Example:

Model Number: A906-HT-BN-V


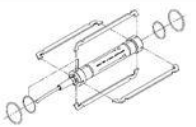

Description: A906 series, High-Gain ($\pm 12^\circ$), Temp sensor, Bipolar Output ($\pm 2.5V$), Non-Damped, Vertical Installation

Model & Part Numbers:

	Bipolar Output ($\pm 2.5V$)		Unipolar Output (0-5V)	
	Model Number	Part Number	Model Number	Part Number
Vertical Installation	A906-HT-BN-V	98906-01	A906-HT-UN-V	98906-11
	A906-HT-BD-V	98906-02	A906-HT-UD-V	98906-12
	A906-ST-BN-V	98906-03	A906-ST-UN-V	98906-13
	A906-ST-BD-V	98906-04	A906-ST-UD-V	98906-14
	A906-WT-BN-V	98906-05	A906-WT-UN-V	98906-15
	A906-WT-BD-V	98906-06	A906-WT-UD-V	98906-16
Horizontal Installation	A906-HT-BN-H	98906-07	A906-HT-UN-H	98906-17
	A906-HT-BD-H	98906-08	A906-HT-UD-H	98906-18
	A906-ST-BN-H	98906-09	A906-ST-UN-H	98906-19
	A906-ST-BD-H	98906-10	A906-ST-UD-H	98906-20
	A906-WT-BN-H	98906-23	A906-WT-UN-H	98906-21
	A906-WT-BD-H	98906-24	A906-WT-UD-H	98906-22

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Accessories:

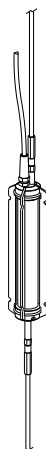
Item	Ref. Drawing	Part Number	Description
1		86817	Push/Pull Handle - For installing Little Dipper string, 26in long
2		86802	Top-cap Hangar Assembly (fits both Inclinator Casing), 3.75in diameter, 2in height
3		86801-0.5M 86801-1.0M 86801-1.5M 86801-2.0M 86801-2.5M 86801-3.0M	Fiberglass Connecting Rod, 0.5m Length, w/ Brass Swivel Connectors Fiberglass Connecting Rod, 1.0m Length, w/ Brass Swivel Connectors Fiberglass Connecting Rod, 1.5m Length, w/ Brass Swivel Connectors Fiberglass Connecting Rod, 2.0m Length, w/ Brass Swivel Connectors Fiberglass Connecting Rod, 2.5m Length, w/ Brass Swivel Connectors Fiberglass Connecting Rod, 3.0m Length, w/ Brass Swivel Connectors (Maximum length)
4		01471	Hex Coupler, Brass, for Con. & Ext. Rods, 1.375in long
5		86816-03 86816-04	Guide Fins for 2.75 inch (70 mm) O.D. Inclinator Casing, Set of 4 Guide Fins for 3.34 inch (85 mm) O.D. Inclinator Casing, Set of 5
6		86803-01	Universal Pivot Assembly - Joins Little Dipper to 86801 Connecting Rod for Interval Monitoring (Guide Fins not included), 14.64in long, 1.5in diameter
7		70369	Power/Signal Cable, 6-conductor, 24 AWG, Polypropylene Jacket, (price per ft.)
8		86818	Tensioning Weight Assembly for Model 906- Vertical Little Dipper String
9		00268 00268-02	Inclinator Casing, 2.75" O.D. x 10 Ft. Long. (For 10 little dippers max) Inclinator Casing, 3.34" O.D. x 10 Ft. Long. (For 20 little dippers max)

Note: See next page for part diagrams

Installation Configuration:



Little Dipper Sensor Module
Direct Burial Installation



Little Dipper with Guide Fins
Multiple-Point Installation



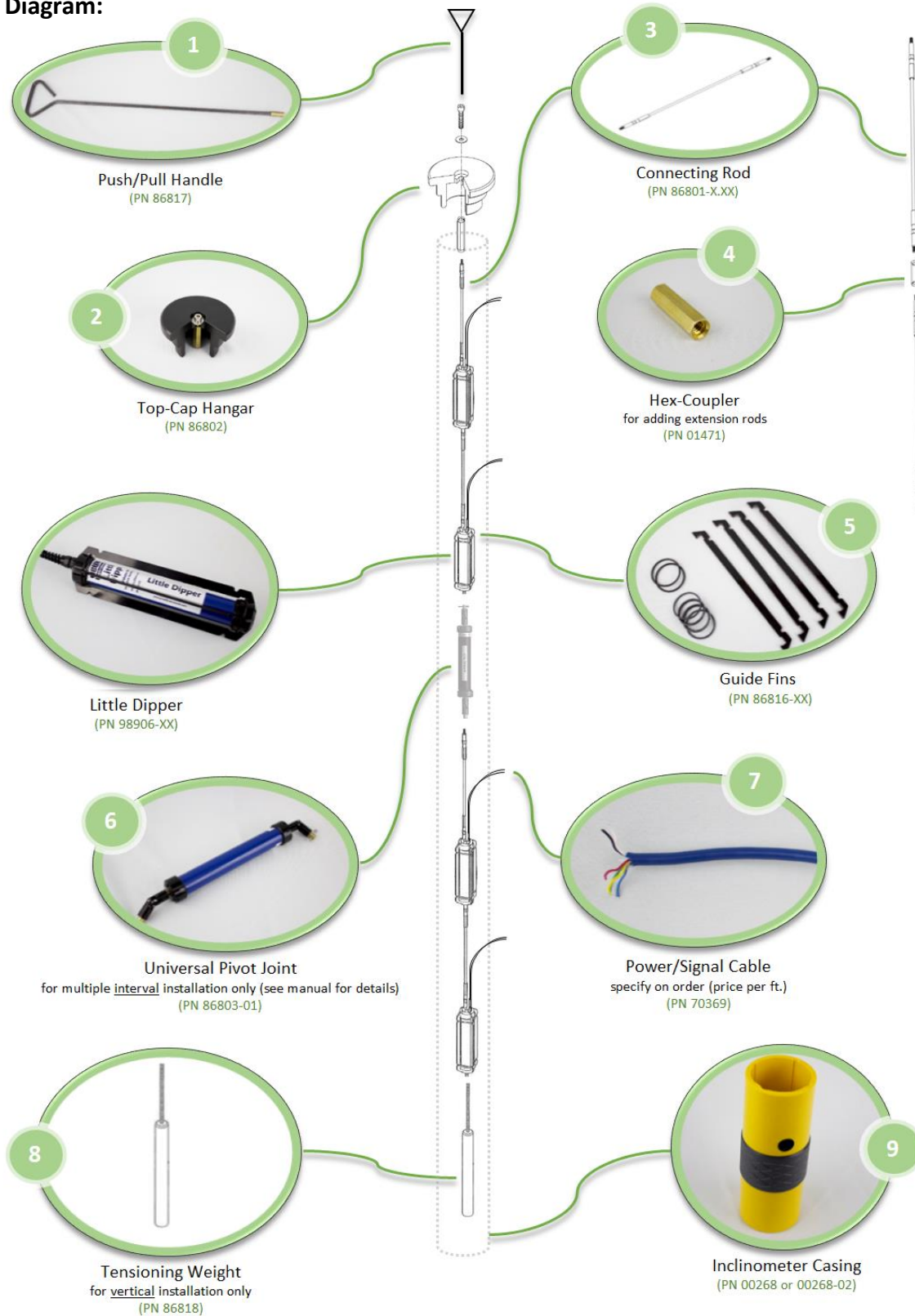
Little Dipper with Universal Pivot
Multiple-Interval Installation

Jewell Instruments LLC 850 Perimeter Road, Manchester, NH 03103

sales@jewellinstruments.com • www.jewellinstruments.com • Tel (800) 227-5955

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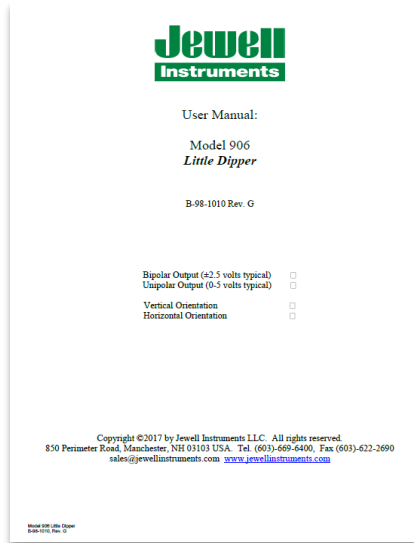
Borehole Diagram:



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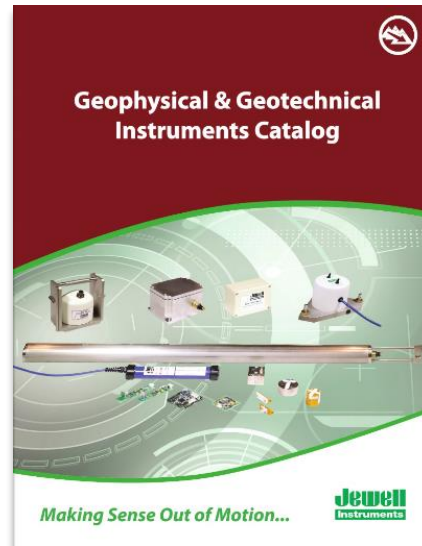
Other Resources:

A906 User Manual



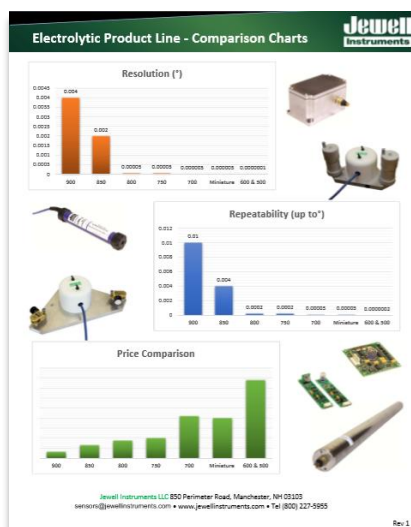
Contact Jewell to get a copy

Geotechnical/Geophysical Catalog



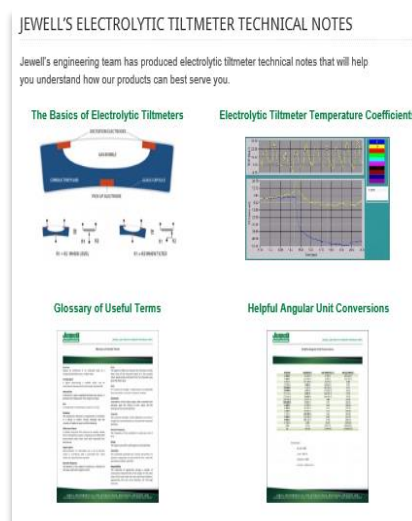
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Comparison Chart



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Technical Notes



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Geo Instruments And Sensors