

Model A904 (Clinometer Pak)

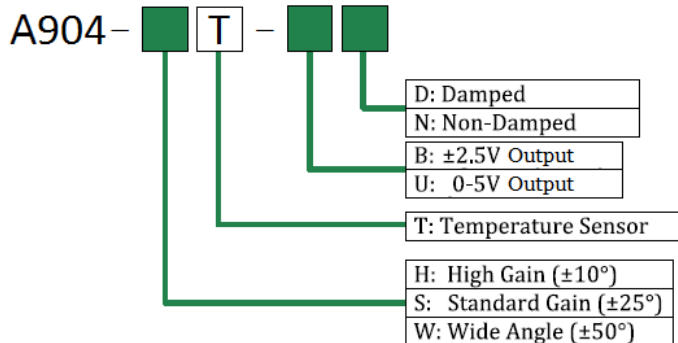
The model A904 “Clinometer Pak” is a low cost biaxial inclinometer housing a rugged weather-proof enclosure. Units are available in +/-2.5V or 0-5V DC output. All A904 Clinometers are IP65 waterproof, and powerful on-board electronics will drive cables over 500 meters. Use the model A904 and for industrial pitch and roll measurements, platform position and control, geotechnical monitoring and more. Units come standard with 3m cable pigtail; for longer lengths please specify per order.



	High-Gain	Standard	Wide-Angle
Angular Range	±10°	±25°	±50°
Resolution ¹	0.005°	0.01°	0.02°
Repeatability	0.02°	0.02°	0.02°
Scale Factor ²	4°/V	10°/V	25°/V
Non-Linearity ³	1%	2.5%	7%
Output	±2.5 VDC or 0-5 VDC		
Channels	X-tilt, Y-tilt, Temperature		
Kz Coefficient	±10 arcsec/C (typical)		
Ks Coefficient	±0.03%/C (typical)		
Time Constant	0.15 sec		
Natural Frequency	10 Hz		
Output Impedance	270 ohms, short circuit protected		
Power	+8 to +24 VDC (bipolar output); +10.5 to +26.5 VDC (0-5V output); 7mA, 250 mV ripple max, reverse polarity protected		
Environmental	Operating: -40 to +80 C Storage: -40 to +85 C 0-90% humidity		
Dimensions, Weight	120 x 80 x 60 mm, 0.4 kg (1 lb.)		
Materials	Die-cast aluminum, painted		

**Specifications subject to change without notice on account of continued development; ¹Resolution calculated at 1mV; ²Linear scale factor calculated from BFSL through calibration curve; ³Linearity calculated as max % deviation from BFSL. 0.05% linearity achievable using a polynomial*

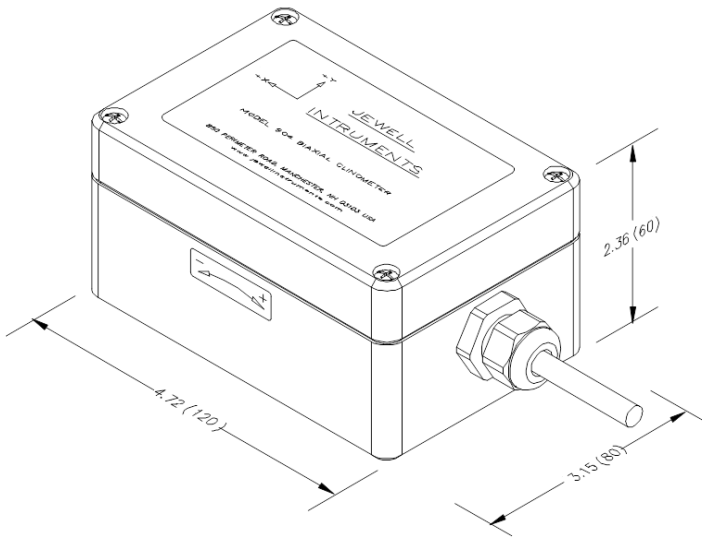
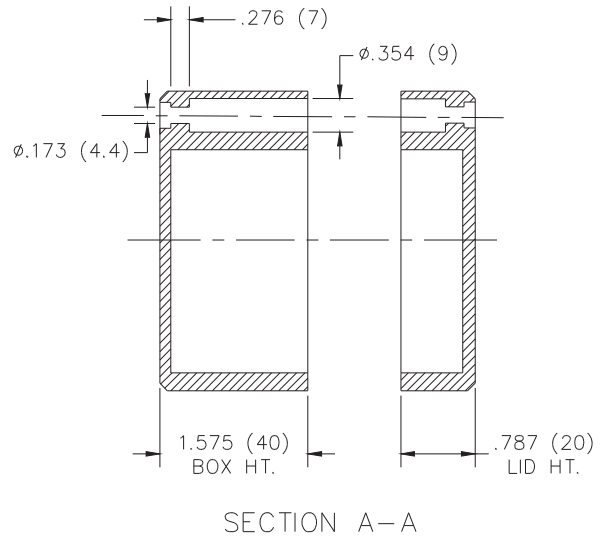
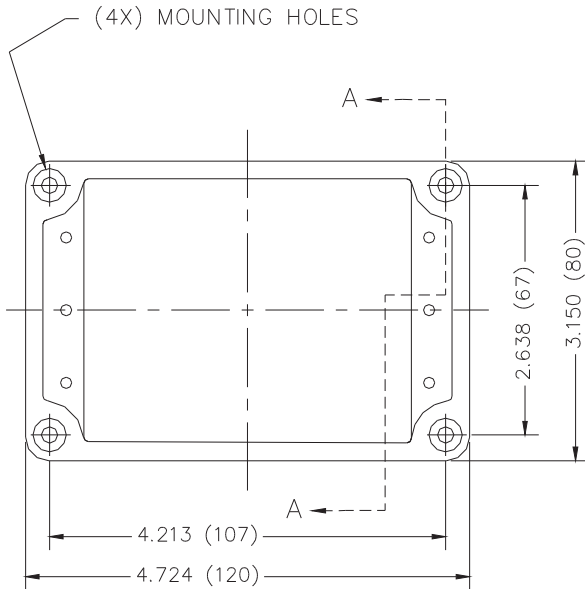
Ordering Code:



Pin-out/Wiring:

Color	Function
Red	V+
Black	GND
Blue	X-Out
Green	Y-Out
Yellow	Temp Out

A904 "Clinometer Pak" Enclosure and Mounting Holes Dimensions



Accessories:

Part No.	Description
70369	6-conductor cable (specify required length on order)
62204	6-pin male receptacle (installed on tiltmeter cable)
62202	6-socket in-line plug (mates to P/N 62204 connector)
870/DMM	Optional 870 Readout Module with Digital Multimeter Display
81439	Mounting bracket for vertical surfaces
84051	Mounting plate for horizontal surfaces

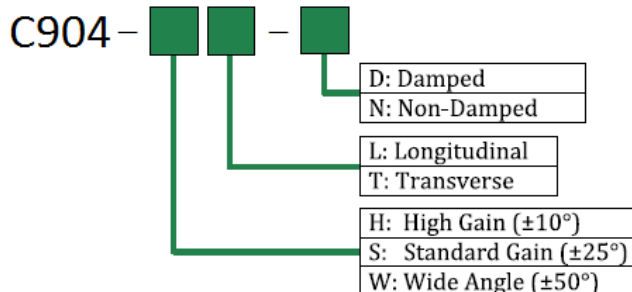
The model C904 “Clinometer Pak 420” uniaxial clinometer delivers the same reliable performance as the A904, but with 4-20mA output. Units are available with longitudinal or transverse axis configuration. The C904 operates as a 2-wire 4-20mA current loop, and will drive signal over 1000m or more. Units also include an on-board thermistor for temperature measurement. Use the C904 with industrial PLC’s, platform position and control, geotechnical monitoring, or any application where long cables are required.



	High-Gain	Standard	Wide-Angle
Angular Range	±10°	±25°	±50°
Resolution	0.005°	0.01°	0.02°
Repeatability	0.01°	0.02°	0.04°
Scale Factor*	1.25°/mA	3.125°/mA	6.25°/mA
Non-Linearity	1%	2.5%	7%
Output	4-20mA, 2-wire Current Loop		
Channels	Tilt, Thermistor		
Kz Coefficient (deg/C)	10-20 arcsec/C		
Ks Coefficient (%/C)	0.03%/C		
Time Constant	0.15 sec		
Natural Frequency	10 Hz		
Power	(0.02 Ampere x R + 10 VDC) < Vs < 29 VDC		
Environmental	-40 to +85°C operation and storage. IP65		
Dimensions	120 x 80 x 60 mm, 0.5 kg (1.1 lb.)		
Materials	Diecast painted aluminum,		
Cable	3m (10ft), 5-conductor + one overall shield, PVC jacket, tinned ends		

*Specifications subject to change without notice on account of continued development; ¹Resolution calculated at 5 μamps; ²Linear scale factor calculated from BFSL through calibration curve; ³Linearity calculated as max % deviation from BFSL. 0.05% linearity achievable using a polynomial

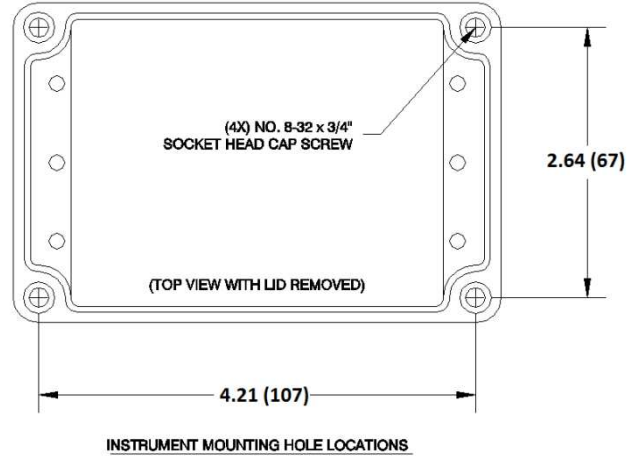
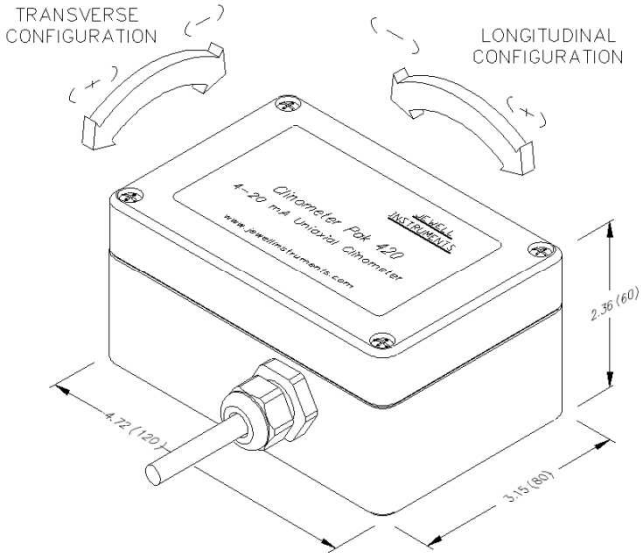
Ordering Code:



Pin-out/Wiring:

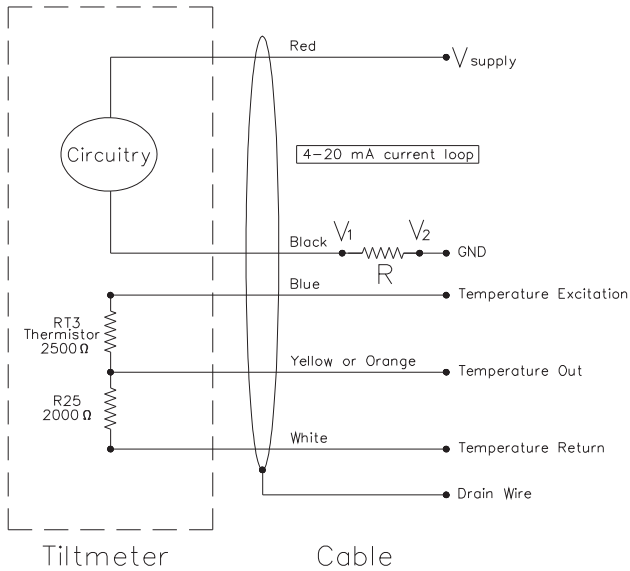
Color	Function
Red	V+
Black	GND
Blue	Temp Excitation
Yellow/Orange	Temp Out
White	Temp Return

Dimensions:



Dimensions in inches (mm)

Circuit Diagram:



Accessories:

Part No.	Description
81439	Mounting bracket for vertical surfaces
84051	Mounting plate for horizontal surfaces
70369	6-conductor cable (specify total length on order)
62204	Optional 6-pin male receptacle (installed on tiltmeter cable)
62202	Optional 6-socket in-line plug (mates to P/N 62204 connector)

Model MD900-T (Digital Clinometer)

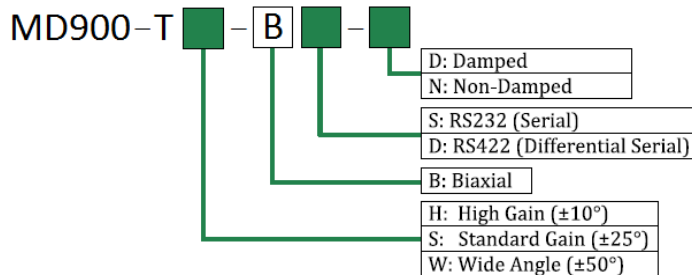
The biaxial model MD900-T is an economical digital clinometer with powerful firmware features. User programmable settings include AUTO-zero (tare), baud and output rate, sample averaging, and more. Output is RS232 or RS422 (RS485 full duplex). The MD900-T easily integrates with a variety of GPS receivers, and supports Trimble TCM, NMEA XDR, BAE, and Ashtech output protocols. Units ship standard with 6-ft. hook-up cable and 100-240VAC power transformer. Use the MD900T for industrial pitch and roll measurement, marine piling, dredging and construction systems, platform leveling, geotechnical monitoring and more.



	High-Gain	Standard	Wide-Angle
Angular Range	±10°	±25°	±50°
Resolution	0.002°	0.004°	0.01°
Repeatability	0.01°	0.01°	0.02°
Non-Linearity	1%	1%	1%
Output	RS232, RS422 (RS485 full duplex)		
Output Format	NMEA XDR, Trimble TCM, BAE, Ashtec compatible, Simple (default: X, Y, Temp., S/N)		
Baud Rate	9600 (default), 19200, 28800, 57600, 115200, 230400		
Channels	X-tilt, Y-tilt, Temperature, Serial No.		
Kz Coefficient (deg/C)	<10 arcsec/°C (typical)		
Ks Coefficient (%/C)	0.03%/°C (typical)		
Time Constant	0.15 sec		
Natural Frequency	7 Hz		
Power	7-28 VDC @ 30mA, 250 mV ripple max, reverse polarity protected		
Environmental	-40 to +85 C operating and storage. 100% humidity, IP65		
Dimensions	120 x 80 x 60 mm, 0.55 kg (1.2 lb.)		
Materials	Diecast aluminum, painted		

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

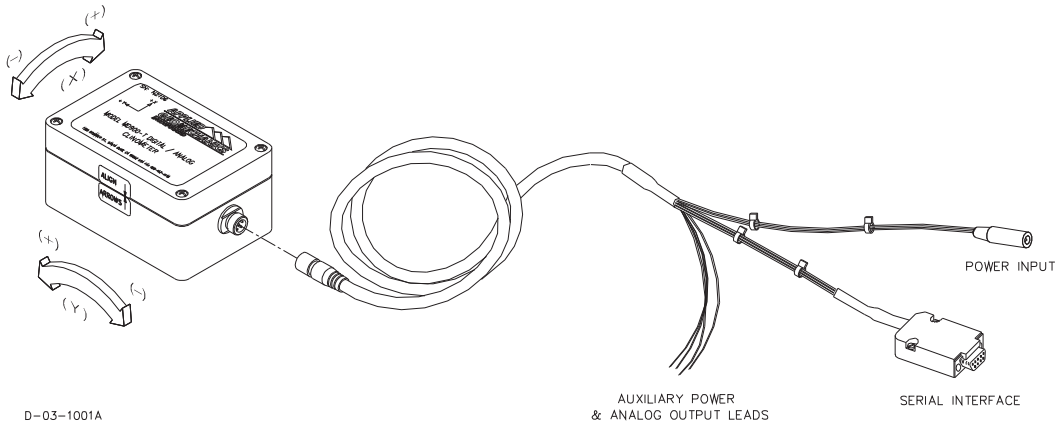
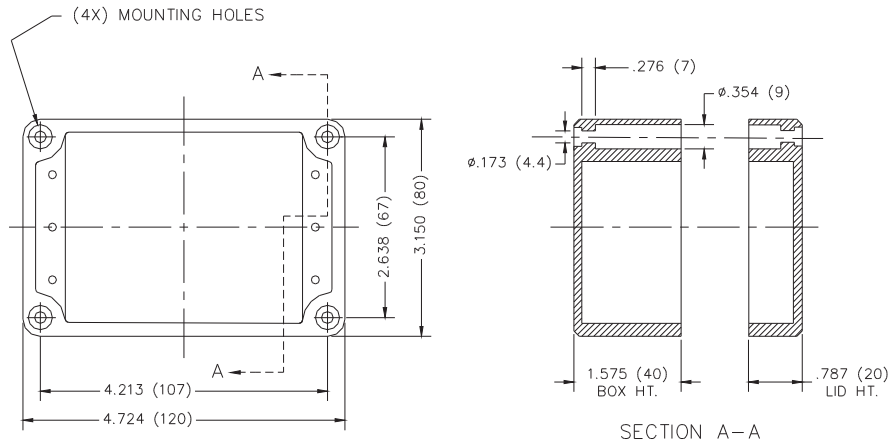
Ordering Code:



Accessories:

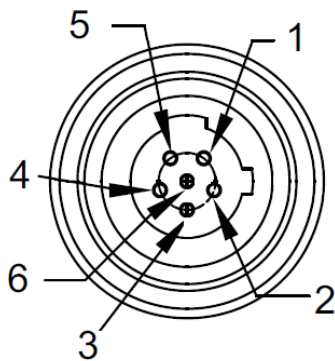
P/N	Description
84033	Extra 6-ft Cable Assembly, RS232 Output, w/ DB9-sub Connector
84080-01	Extra 6-ft Cable Assembly, RS422 Output, w/ DB9-sub Connector
70369	6-conductor cable (specify total length on order)
00254-02	Transformer, 100-240VAC to 12VDC
81439	Mounting bracket for vertical surfaces
84051	Mounting plate for horizontal surfaces

MD900-T Digital Clinometer Enclosure and Mounting Holes Dimensions



Datasheet-Model-904_pmi_EN.pdf

Cable Wiring and Pin-outs



6-Socket Female Connector Face View

RS232 Wiring

6-socket female	Wire Color	Function	DB9 Pin-out
1	Red-White	GND	5
2	Red	V+ (Power)	--
3	Green-Yellow	Analog X Out	--
4	Red-Yellow	RxD (RS232)	3
5	Red-Black	TxD (RS232)	2
6	Red-Blue	Analog Y Out	--

RS422 Wiring

6-socket female	Wire Color	Function	DB9 Pin-out
1	Red-White	GND	1
2	Red	V+ (Power)	--
3	Green-Yellow	Rx- (RS422)	9
4	Red-Yellow	Rx+ (RS422)	8
5	Red-Black	Tx+ (RS422)	4
6	Red-Blue	Tx- (RS422)	5