



- Made in U.S.A.
- The SPI•TRONIC PRO 360 is a revolutionary angle measuring tool.
- Multi-functional. Digital Level, 360° Protractor and Inclinator.
- Instant LCD display of level, tilt, true vertical or any angle in between to highest accuracy, one tenth of a degree reading.
- Use upside down, display reverses to right side up.
- Deviation from the true plane is measurable through full 360° (4x90°).
- Floating zero! Provides zero selection anywhere within its 360° range.
- Hold button freeze! Displays reading for convenient out of sight measurements.
- Reset plus Superset self-calibration modes.
- High-impact machined aluminum frame houses a rugged electronic sensor, custom circuitry and the liquid crystal display.
- Baseplate has V-groove for accurate registration on curved or cylindrical surfaces.
- Tapped #6-32 holes in baseplate for special mountings.
- Operates on standard 9V Alkaline battery for up to 250 hours of operation. Battery included.
- Low battery indicator. Automatic shutoff.

#### SPECIFICATIONS

Measuring Range:	360° (4x90°)
Resolution:	0.1°
Accuracy:	0-10° ±0.1° 11-79° ±0.2° 80-90° ±0.1
Repeatability:	Same as accuracy
Cross Axis Error:	<.02° up to 20°
Operating Temperature Range:	-5° to +50° C
Storage Temperature Range:	-20° to +65° C
Size:	6.0 x 1.2 x 1.9 high
Weight:	10.2 oz.

勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-54151736  
 勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

- \* 耐衝擊鋁合金機械結構，堅固耐用。
- \* 底座 V 型設計可應用在彎曲曲面、圓筒表面上。
- \* 底座有 #6-32 螺牙孔，可加裝延長基座應用在於特殊量測。
- \* 使用標準 9V 鹼性電池，正常情況下可使用 250 小時。
- \* 電量不足時顯示幕會出現 "B" 訊號。
- \* ON/OFF 為電源開關。此儀器有 5 分鐘自動斷電功能。
- \* HOLD 為保留鍵。按此鍵顯示幕右上角 HOLD 位置會出現方型閃爍信號，即表示數據被保留不動。再按鍵一次，閃爍信號即消除，恢復原來狀態。
- \* ALT ZERO 為歸零設定鍵。按此鍵出現 "ALT" "8" "0" 一下顯示幕右下角 ALT ZERO 位置有方型閃爍信號，即表示數據被重新設定歸零過。再按鍵一次，閃爍信號消除，恢復來狀態。
- \* CALIBRATION 為重新自我校正功能。
- \* Range...360(90\*4)
- \* Resolution...0.1

# ATTENTION

Your new digital protractor must be calibrated before use to ensure accurate readings. See your owner's manual for Superset® calibration instructions.

# WARNING

DO NOT PLACE BATTERY IN BACKWARDS

## Pro 360 - Specifications

**Range** ..... 360° (90° x 4)  
**Resolution** .... 0.1°  
**Accuracy** .....  $\pm 0.1^\circ$  level  $\pm 10^\circ$ ; plumb  $\pm 10^\circ$   
 $\pm 0.2^\circ$  maximum error  
**Temperature**  
**Operating** .... -5° C to 50° C (23° F to 122° F)  
**Storage** ..... -20° C to 65° C (-4° F to 149° F)

**Weight** ..... 289 g. (10.2 oz.)

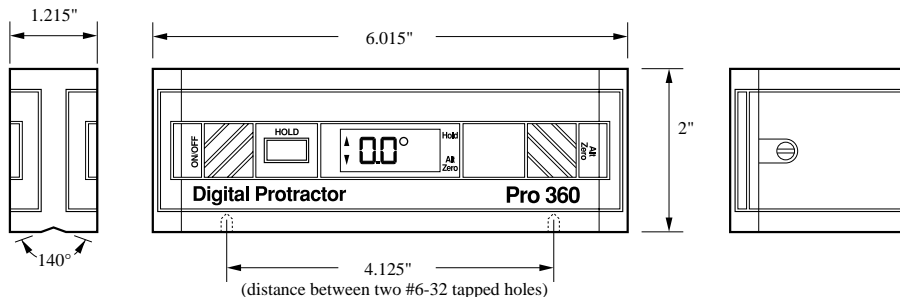
**Repeatability** .....  $\pm 0.1^\circ$

**Cross Axis Error** .. Minimal

**Power** ..... 9 V. Alkaline Battery

**Battery Life** ..... 500 hours typical

**Warranty** ..... 1 year, limited



*Your Pro 360 has been Superset® back to manufacturer's spec's.*

### ***Canceling Superset®***

You may cancel Superset® at any time during the process by turning the unit off.

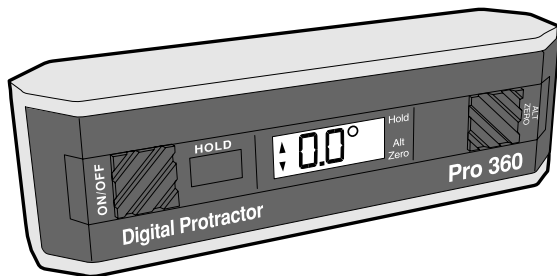
## ***Maintenance***

The Pro 360 is designed to stand up to the rigors of industrial use. The following tips will ensure a long service life:

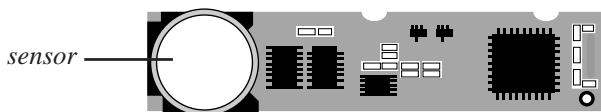
- Use the "end-for-end" accuracy test daily to make sure the unit is in calibration. If it is not, recalibrate it immediately with Superset®.
- Clean the Pro 360 with mild liquid soap and a damp cloth. Never immerse in water.
- Do not use solvents directly on any of the Pro 360 plastic surfaces.
- Store the Pro 360 away from extreme temperature: Never below  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) or above  $65^{\circ}\text{C}$  ( $149^{\circ}\text{F}$ ).

## ***Introduction***

The Pro 360 Digital Protractor is a revolutionary measuring tool that provides an immediate, digital reading of all angles in a  $360^{\circ}$  circle. The machined aluminum frame is a rigid, light weight, ultra-precise platform that allows the state-of-the-art sensor and its microprocessor circuit to provide unsurpassed accuracy throughout the Protractor's  $360^{\circ}$  range.



The Pro 360 uses an innovative liquid filled angle sensor. As the protractor is moved, the liquid seeks a new position, resulting in changes in the electrical properties of the sensor. A microprocessor analyzes the changes and calculates the numbers seen on the display.

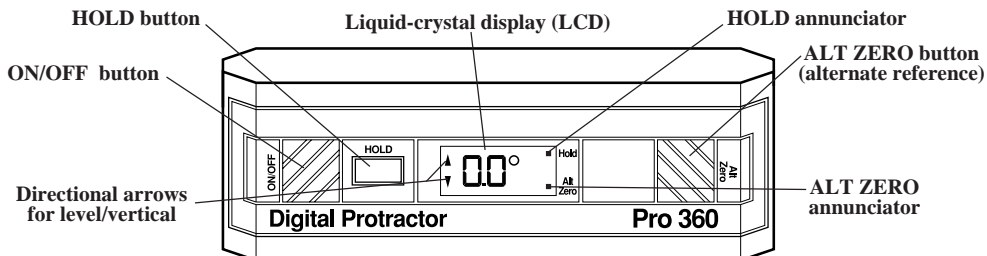


## Feature Overview

The Pro 360 operates normally in a standard reference mode where *level* is displayed as 0.0°. However, a new reference point for 0.0° can easily be established by pushing the ALT ZERO button. You can also "freeze" any displayed angle on the LCD by pushing the HOLD button.

The 360° range of the unit is organized into four 90° quadrants for display purposes. In each, the Pro 360 achieves an accuracy of  $\pm 0.1^\circ$  at level and plumb with a maximum error of  $\pm 0.2^\circ$  in between.

And the Pro 360 does not need to be returned to the manufacturer or dealer for recalibration. By following the Superset® instructions in this booklet, you can test and recalibrate the Pro 360 in just a couple of minutes on site and without any special fixtures.



## Superset® - Vertical Settings

[ 5 ]

- Place unit against vertical surface so it faces you, the lettering on the face ("Pro 360, etc.) should read from bottom to top
- Align with an edge or line - wait 10 seconds
- Press HOLD button until [ 5 ] appears

[ 6 ]

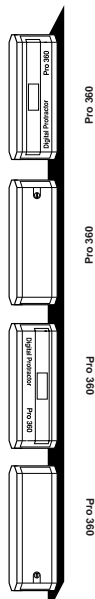
- Roll the unit so it faces away from you, the lettering should still read from bottom to top
- Align with same edge or line - wait 10 seconds
- Press HOLD button until [ 6 ] appears

[ 7 ]

- Rotate unit end-for-end so it faces you, the lettering should now read top to bottom
- Align with same edge or line - wait 10 seconds
- Press HOLD button until [ 7 ] appears

[ 8 ]

- Roll the unit so it faces away from you, the lettering should still read top to bottom
- Align with same edge or line - wait 10 seconds
- Press HOLD button. [ 8 ] will very briefly appear, followed immediately by regular angle measuring.



## Superset® - Horizontal Settings

[ 1 ]

- Unit faces you and white lettering on face is right-side up
- Align with an edge or line - wait 10 seconds
- Press HOLD button until [ 1 ] appears

[ 2 ]

- Rotate unit so it faces away from you, the lettering should still be right-side up
- Align with same edge or line - wait 10 seconds
- Press HOLD button until [ 2 ] appears

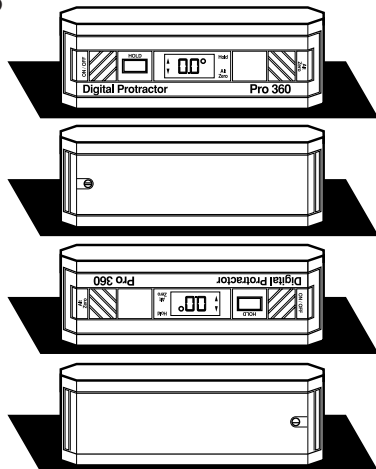
[ 3 ]

- Roll unit so it faces you, the lettering should now be upside-down
- Align with same edge or line - wait 10 seconds
- Press HOLD button until [ 3 ] appears

[ 4 ]

- Rotate unit so it faces away from you, the lettering should still be upside-down
- Align with same edge or line - wait 10 seconds
- Press HOLD button until [ 4 ] appears

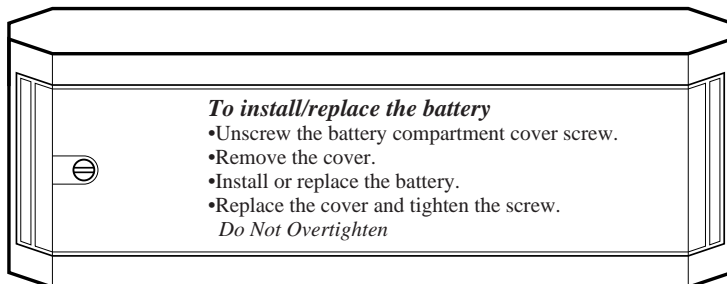
*You have completed one half of Superset® (continued on next page)*



## Operating Instructions - Battery

The Pro 360 is powered by a 9-volt battery. A new alkaline battery will provide 500 hours of use. A 9-volt lithium battery can be used for even longer life.

To extend battery life, the Pro 360 shuts off automatically when left undisturbed for five minutes (to reactivate, push the ON/OFF button). The Pro 360 also indicates when the battery is low. Change the battery when the display alternately flashes "LO bAt" with angle measurements. (**NOTE:** The Pro 360 does not display inaccurate angles due to a weak battery.)



### *To install/replace the battery*

- Unscrew the battery compartment cover screw.
- Remove the cover.
- Install or replace the battery.
- Replace the cover and tighten the screw.

*Do Not Overtighten*

## Operating Instructions - Angle Measuring

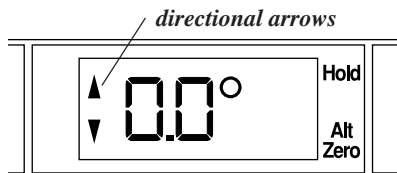
First, you must make sure your unit is reading accurately by using the test on pages 8-9. If the unit fails this simple test, you must recalibrate it using Superset® (pages 10-12).

To operate your Pro 360, simply push the ON/OFF button; it will begin displaying angle readings immediately. Set the Pro 360 on the surface to be measured and read the angle. (To get the most accurate reading, allow the unit to settle for 5 seconds before noting the angle.)

When the unit is first turned on, the displayed angles will be in *standard reference mode* - level (true horizontal) is displayed as 0.0° and plumb (true vertical) is displayed as 90.0°. (An *alternate reference point* can be set easily if desired - see ALT ZERO.)

An arrow on the left side of the display will indicate which way to move the Pro 360 to achieve level or plumb.

Between 0° and 44.9°, the arrow will point towards level. Between 45° and 89.9°, the arrow will point toward vertical (plumb).



If you continue to rotate the Pro 360, the numbers on the Pro 360 display "flip over" when the unit is upside-down, allowing for easy reading in any position.

## Superset®

Superset® recalibrates the Pro 360 through its entire 360° range by electronically recording four horizontal and four vertical settings. It should be performed whenever the accuracy test shows a discrepancy of 0.1° or more.

### How to Perform Superset®

Turn on the Pro 360 and place it on a flat surface. You can use any horizontal surface within 10° of level and any vertical surface within 10° of plumb to perform Superset®. You must use the same surfaces throughout the entire process.

**Note:** Each time you reposition the Pro 360 during Superset®, wait a minimum of 10 seconds before pressing the HOLD button to advance to the next step.

### Starting Superset®

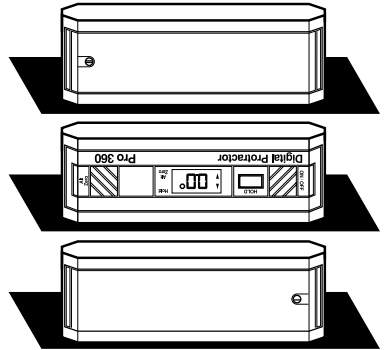
- Press and hold the HOLD and ALT ZERO buttons simultaneously. Keep them depressed for approximately three seconds.
- Release the buttons when the symbol "SUP" appears. A "0" within flashing brackets will then appear. These brackets are composed of four horizontal and four vertical segments.



*Note that as you proceed through the eight steps of Superset®, a new segment will hold steady after you complete each step.*

"0" within flashing brackets

- Rotate the unit end-for-end so the display is facing away from you. Be sure to set the Pro 360 in exactly the same spot, and wait 10 seconds before reading the angle that's displayed.
- Now roll the unit toward you so that the display is facing you, but the lettering on the face of the unit is upside down. Wait 10 seconds, and note the angle on the display.
- Finally, rotate the unit end-for-end so the display is facing away from you (the lettering should still be upside-down). Wait 10 seconds and note the angle on the display.



- **If any of the four measurements varies from any other by more than  $0.1^\circ$ , you must recalibrate (Superset®) your unit before using it further.**

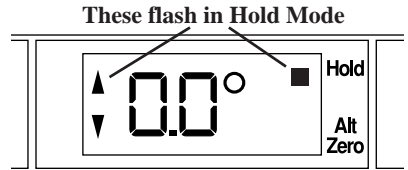
### ***HOLD (temporarily "freezing" a reading on the display)***

If you need to take a measurement with the Pro 360 in an unreadable position, or if you need to temporarily lock in a reading while you record it, simply press the Hold button while measuring the angle. (Make sure the unit has been in position and still for 5 seconds.)

The readout will freeze and a flashing ■ will appear in the right upper hand corner of the display. An arrow on the left side of the LCD will also flash.

To release, press the Hold button again.

**Note:** *The Pro 360 cannot be recalibrated (Superset®) nor can a new reference point be established (ALT ZERO) when the HOLD feature is engaged. The HOLD feature is disengaged automatically when the unit shuts off or is turned off.*

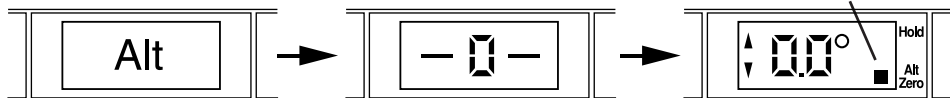


## ALT ZERO (Setting an alternate reference point)

ALT ZERO allows you to set any angle as a  $0.0^\circ$  reference point from which to take measurements. For example, you may want a surface that is actually  $3^\circ$  off horizontal displayed as  $0^\circ$  so you can measure all other angles from that benchmark.

To set an alternate reference point, place the Pro 360 on the new surface and wait 5 seconds. Press the ALT ZERO button once. "Alt" will appear on the display, followed by "-0-". The Pro 360 will then display angles using the new reference. A flashing ■ will appear in the lower right hand corner of the display as long as the Pro 360 is in ALT ZERO mode.

Annunciator flashes in ALT ZERO mode



Press ALT ZERO again to return to standard reference mode. The Pro 360 also returns to standard reference when it is turned off or shuts off automatically.

*NOTE: You cannot activate the ALT ZERO button when the Pro 360 display is in HOLD.*

## Recalibration

Like all measurement instruments the Pro 360 must periodically be monitored for accuracy. The Pro 360 should be tested daily with the simple procedure outlined below. If it is found to be out of calibration, it is easily recalibrated on site using Superset® - an eight-step procedure that realigns the unit through its entire  $360^\circ$  range and takes just a couple of minutes to perform. And Superset® doesn't require any special fixtures, tools, or expertise.

## Accuracy Test

**Perform this simple test each day before using the Pro 360. Also perform it anytime the Pro 360 has been dropped or is being used in an environment that varies more than  $5^\circ$  C ( $9^\circ$  F) from the environment in which it was last calibrated. If your Pro 360 fails this test, you must recalibrate it using Superset® before using the unit further to measure angles.**

- Position the Pro 360 with the display facing you on a clean, flat horizontal surface. It doesn't have to be exactly level. Wait 10 seconds so the unit is completely settled and note the angle on the display.

