Apache Technologies
8261 State Route 235
Dayton, OH 45424 USA
Phone: (937) 482-0200
Fax: (937) 482-0030
www.apache-laser.com

Operator's Manual

Apache Technologies

CYCLONE® Laser Detector

CYCLONE Laser Detector

Thank you for purchasing an Apache Technologies, Inc. product. Your CYCLONE® Laser Detector is a premium quality tool that has been designed and manufactured to provide years of precise and reliable performance.

This manual is an important part of your purchase as it will familiarize you with the unit and explain the numerous features that have been designed into it. Please read this manual thoroughly before using your detector.

Please contact your Apache dealer or the Apache factory should you have questions regarding specific applications or if you require additional information.

IMPORTANT: Fill out the Warranty Registration Card and return it to Apache Technologies, Inc.

Please record your CYCLONE Laser Detector information below for future reference.

Model / Serial No: _____/_____

Date of Purchase: _____

Purchased From: _____

_____

Phone: _____

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P/N ATI 210049 Rev C

General Description

The Cyclone hand-held or rod mounted laser detector is designed to receive reference elevation information from all rotating laser levels, including visible and invisible beams.

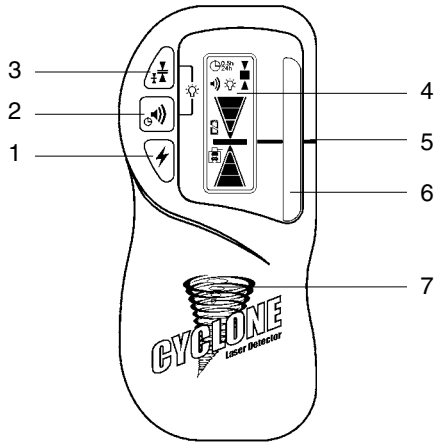
Liquid Crystal Displays (LCD's) on the front and rear are included for easy visual indication of grade information and detector settings. A beeper also emits an adjustable audible tone that indicates on-grade, high or low. Accuracy levels are user selectable to meet various job requirements including industrial applications.

The detectors have been specifically designed for use in harsh construction environments. Impact resistant housings, recessed windows, waterproof design, durable battery contacts, and a high volume beeper are incorporated into every detector.

A general purpose clamp is included and designed to mount the detector on various grade rods and staffs. A patented reversible wedge on the clamp allows sure grip mounting to round, oval, square, and rectangular rods, as well as various sizes of wooden staffs.

CYCLONE Laser Detector - Model 64

Primary Functions - Front View

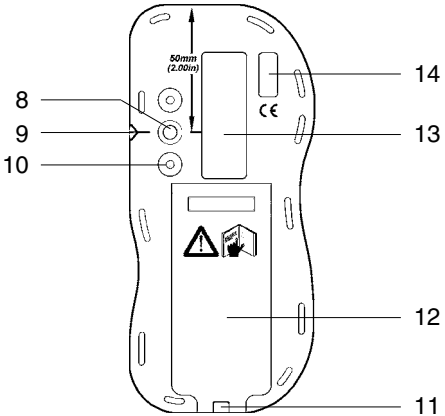


1. Power Switch - Press once to turn On. Unit beeps and LCD's turn on to confirm power is on. Press and hold for 2 seconds to turn off. Unit beeps and LCD's turn off.

2. Beeper Switch- selects the sound level. Pressing switch cycles Loud, Off, and Low. When sound is off, 1 beep indicates laser is detected.

3. Accuracy Switch- selects detection accuracy. Pressing switch cycles through 4 accuracy options. Refer to details on page 9.

Rear View



4. Liquid Crystal Display (LCD) - front LCD indicates the detectors position relative to the laser beam and other detector settings. Refer to details on Page 7.

5. On-Grade Mark - aligned with the laser on-grade reading. Top of detector is 2" (50 mm) above mark. Mark is located close to the photocells for error free marking.

6. Laser Reception Window - photocells are located behind the window which detect the laser signal. Window must be directed toward laser.

7. Beeper Output - Fast audible signal is detector too High; solid is On-Grade; slow is detector too Low.

Rear View

8. Captive Screw Thread - detector thread insert accepts the rod clamp screw to secure detector to the clamp.

9. Offset Notch - Used for transferring reference marks. Top of detector is 2" (50 mm) above "On-Grade".

10. Clamp Guides - 2 dimples help align rod clamp.

11. Battery Door Latch - Use a coin to open and install or replace batteries. Insert batteries noting plus (+) and minus (-) terminal diagram on the detector housing.

12. Battery Door - waterproof compartment houses 2 x "AA" alkaline batteries.

13. Rear LCD - functions the same as the front LCD.

14. Serial Number Label

Secondary Switch Functions

LCD Backlighting - Pressing the Beeper and Accuracy switches together turns the LCD backlight on. The backlight is used in dim light conditions to aid in viewing the LCD. Pressing both switches again turns the backlight off.

The **Power** switch functions as a "**shift**" key. When the unit is on, pressing and holding this switch enables the secondary switch functions. These switch functions are used to change the automatic shut-off time and to access the industrial alignment modes.

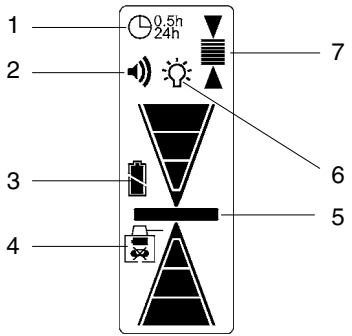
Secondary Switch Functions

Automatic Shut Off - With power On, press and hold the Power switch and press the Beeper switch to change the auto shut off time. Choices are 30 minutes (.5hr) or 24 hours (24h). The selection will be indicated by the clock and time symbols on the LCD. A selection change will also be indicated by a short beep.

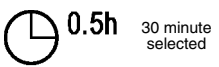
To completely disable automatic shut off, hold both switches for 2 seconds until the unit beeps and all LCD symbols are displayed, then release. The time symbols on the LCD will then turn off to confirm that the automatic shut-off is disabled. To exit this mode, reset to 30 minutes or 24 hours, or turn the power off. When the unit is turned back on, it will revert to the 30 minute or 24 hour auto shut off.

Industrial Alignment - With the unit On, press and hold the Power switch and press the Accuracy switch to change from the normal operating accuracies to the industrial alignment accuracies. The unit will beep once and the "zero" deadband will be entered and displayed by a flashing top and bottom arrow on the accuracy indicators on the LCD. While in this mode, pressing the accuracy switch will change between the 3 industrial accuracy selections. Refer to the LCD section on page 9 for details. Press and hold the power switch and then press the accuracy switch again to exit the industrial alignment mode. The accuracy indicators will remain solid to confirm normal operating modes. The unit

Liquid Crystal Display



1. Automatic Shut-Off - clock and number indicate a 30 minute or 24 hour shut-off is selected. No symbol indicates that auto shut-off is disabled.



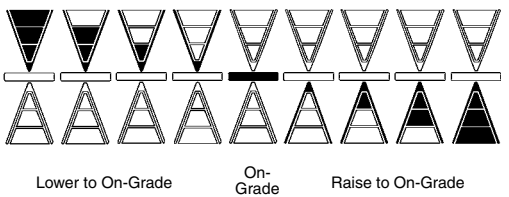
2. Beeper Volume Indicator - All symbols are on when loud. Partial symbol is on when low. No symbol indicates the beeper is off.

Liquid Crystal Display

3. Low Battery Warning - 4 indications of battery status:

4. Laser Out of Level Indication - Refer to the Special Functions section on page 10 for a description of this feature.

5. Multichannel Grade Indication - 9 individual displays or channels indicate grade location. Horizontal bar indicates on-grade. Arrow size increases as distance away from on-grade increases. Up arrow indicates detector is low. Down arrow indicates detector is high.

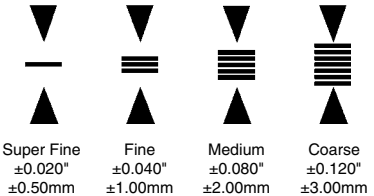


6. LCD Backlight Symbol - bulb symbol indicates the LCD backlight is on.

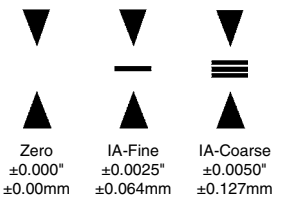
Liquid Crystal Display

7. Detection Accuracy Indicator:

Normal Accuracy - Solid Symbol



Industrial Alignment (IA) Accuracy - *Flashing Arrows*



Laser Out of Level Warning - This function is used with lasers that communicate to the detector that the laser is out of level. The lasers change their normal rotating speed (RPM) to a different speed when they are out of level. When enabled, the detector senses this RPM change and displays the laser out of level symbol on the LCD. The beeper of the detector also alternates between high and low to give a distinct warning sound.

Out of Level Warning

To enable the out of level warning, turn the power on. With the power on, press all three switches - the power switch, the beeper switch, and the accuracy switch - at the same time. When the laser symbol with the battery and level bubble appear, the function is enabled. When the outline of the laser only appears, the function is disabled. Press all three switched again to cycle the function.

Out of Level Enabled

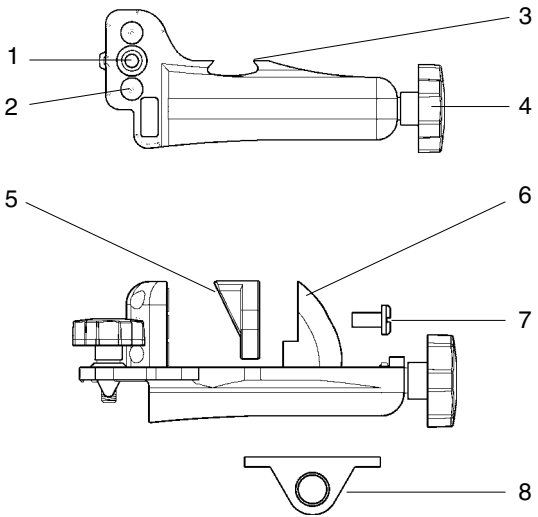
Out of Level Disabled

Off Grade Alert Mode - This function used for special applications. It is designed to audibly alert the user when the detector moves from the on-grade position. In this mode, the on-grade deadband does not activate the beeper - there is no sound. When moved out of the on-grade zone, the beeper does sound in the loud mode and function otherwise as normal. All other detector functions operate as usual.

To enable this mode, press the Power switch and the Beeper switch at the same time to turn the unit on. The beeper symbol will flash to indicate that the grade alert mode is enabled.

To exit the grade alert mode, simply press the beeper switch or turn the power off. When the unit is turned back on using the Power switch only, it will be in the normal operating mode.

Rod Clamp - Model 62



1. Captive Rod Clamp Screw - attaches to the back of detector.

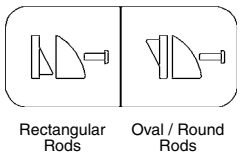
2. Alignment Points - help secure and align rod clamp to detector.

3. Reference Indicators - points are aligned with the detector's on-grade location for accurate grade rod readings.

Rod Clamp - Model 62

4. Clamping Screw Knob - secures clamp to rods and staffs by moving the traveling jaw.

5. Reversible Face - slanted face is used to tightly grip round and oval rods; flat face is used to grip rectangular and square rods.



6. Traveling Jaw - moving jaw grips tightly to rods.

7. Flathead Screw - holds reversible face in place. Remove with flathead screwdriver to change face selection.

8. Optional Bubble Vial Kit - aids in keeping rods plumb when taking rod readings.

Specifications

Working Radius:	3 ft. - 1000 ft. (1 m - 300 m) Laser dependent
Detection Height:	2" (50 mm)
Accuracy:	Normal Mode Super Fine ±0.020" (±0.50 mm) Fine ±0.040" (±1.00 mm) Medium ±0.080" (±2.00 mm) Coarse ±0.120" (±3.00 mm) Industrial Alignment Mode Zero ±0.0000" (±0.000 mm) Fine ±0.0025" (±0.064 mm) Coarse ±0.0050" (±0.127 mm)
Reception Angle:	± 45°
Detectable Spectrum:	610 nm to 900 nm
Beeper Volumes:	Loud 110 dBA Low 90 dBA
LCD Backlighting:	Yes, front and rear
Power Supply:	2 x 1.5 Volt "AA" batteries
Battery Life:	90 hours
Automatic Shut Off:	Selectable - 30 minutes, 24 hours, Off
Weight:	10 oz. (280 g) without clamp 16 oz. (450 g) with clamp
Dimensions:	6.4" x 2.9" x 1.2" (163 x 74 x 30 mm) without clamp
Operating Temp:	-4°F to +140°F (-20°C to +60°C)
Storage Temp:	-40°F to +158°F (-40°C to +70°C)

**Specifications subject to change without notice*

Maintenance and Safety

Detector Cleaning: Do not wipe dust or dirt off the detector reception window or display windows with a dry cloth or other abrasive material as scratching could occur, reducing visibility through these windows. A soft cloth and mild soap and water are effective. The unit may be submerged under water or sprayed with a low pressure hose if necessary. Do not use any other fluids other than water as they may attack polymer components.

Transport: Use the original carton or a laser instrument case to transport the detector.

Storage: If the detector will not be used for a month or more, it is recommended to remove the batteries.

Batteries: It is recommended to use only high quality alkaline batteries.

Intended Uses of Detector: The laser detector is designed and suitable for detecting a rotating laser beam.

Prohibited Uses:

- Operation without instruction.
- Operation other than the intended uses.
- Opening the detector, except the battery compartment.
- Modification or conversion of the detector.

Precautions:

- The person in charge of the detector must understand the instructions in this manual and ensure other users do also.
- Periodically carry out test measurements, particularly after the detector has been subjected to abnormal use and before and after important measurements.

Warranty

Apache Technologies, Inc. CYCLONE laser detectors and clamps are warranted to be free of defects in material and workmanship for a period of three years. This warranty period is thirty-six months from the date the product is delivered from the dealer to the purchaser or is put into service by a dealer as a demonstration unit or rental unit. In addition to the basic warranty above, Apache Technologies may choose to repair or replace, at its discretion, any CYCLONE detector, in the event of failure for any reason, during the warranty period.

A Warranty Registration Card must be filled out properly and on file with Apache Technologies.

Any evidence of misuse, alteration, or an attempt to repair products by unauthorized personnel, or use of parts other than those provided by Apache Technologies automatically voids the warranty. Competitor purchased and tested units are excluded from this warranty.

The user of the product is expected to follow all operating, maintenance and care instructions.

Apache Technologies liability under this warranty is limited to repairing or replacing any product returned to its factory for that purpose. The foregoing states the entire liability of Apache Technologies regarding the purchase and use of its product and they shall not be held responsible for any consequential loss or damage of any kind.

This warranty is in lieu of all other warranties, expressed or implied, and constitutes all of Apache Technologies liability with respect to merchandise sold by it.

CE DECLARATION OF CONFORMITY

Application of Council Directive:
89/336/EEC

Manufacturer's Name:
Apache Technologies, Inc.

Manufacturer's Address:
8261 State Route 235
Dayton, OH 45424 USA

European Representative Address:
Apache Technologies Europe GmbH
Langenberger Str. 590
D-45277 Essen, Germany

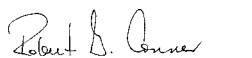
Model Number(s):
Cyclone Model 64

Equipment Type / Environment:
ITE / residential, commercial, light industrial

Harmonized Standards Applied:
Electromagnetic Compatibility (EMC),
EN 61000-6-1: 2001; EN 61000-4-2: 1995
EN 61000-4-3: 1995; EN 61000-4-8: 1995
EN 61000-6-3: 2001; EN 55011: 1998

We herewith declare, in exclusive responsibility, that the instrument conforms to the above mentioned directive including their amendments up to the date below.

September 2003



Robert G. Conner, President

Notice to Our European Union Customers

For product recycling instructions and more information, please go to: www.trimble.com/environment/summary.html

Recycling in Europe

To recycle Trimble WEEE, call: +31 497 53 2430, and ask for the "WEEE associate," or

mail a request for recycling instructions to:
Trimble Europe BV
c/o Menlo Worldwide Logistics
Meerheide 45
5521 DZ Eersel, NL