

# *Optical Instrumentets*

Equipment for Contractors,  
Surveyors, and Engineers



**CST/berger**

*No One Measures Up ... Worldwide*

## Berger Instruments Levels - Transit/Levels

Top quality products for over 130 years.

### Berger Speed Series Levels & Transit-Levels

Berger has been building quality, reliability, and value into their instruments since 1871. Made in USA. One year warranty.

#### Features:

- Non-strip focus knob
- Built-in sunshade
- Large coated achromatic lens
- Rubber eyepiece cap
- Brass leveling screws
- 4-1/2" (1.4m) short focus
- High precision glass level vials
- Dust protected eyepiece with fixed cross hairs
- Stainless steel sliding lock lever locks telescope (on Transit/Levels)
- One piece aircraft aluminum telescope
- Powder coated safety yellow paint
- Includes custom hard-shell carrying case, plumb bob (not included with Econo Line), Allen wrench, and manual.

#### Magnum Line

These units are for the serious builder or contractor who requires greater accuracy. These instruments are designed with a heavy-duty dome shaped head that holds a double ball bearing center, giving the user 5 minute readouts. Model 300B has a 1° vertical arc and two leveling vials. Units have a 3-1/2" x 8 thread. Both models provide 1/8" accuracy at 100' (3mm at 30m) with a 250' (76m) working range.

**54-290B** Model 290B Level Only

**54-300B** Model 300B Transit-Level Only



54-290B



54-300B

#### Magnum Line with Laser Plummet

These units eliminate the need for a plumb bob for fast and easy setup over a point. Instrument features are similar to 54-290B/-300B, plus 5/8" x 11 tripod thread, and three leveling screws. Laser plummet features a bright 635nm diode (Class II) with 3 element glass lens. Laser dot diameter is ≤ 2mm @ 2m (6'). Ten minute sensitivity provides ±1mm plumbing accuracy. **Note: optical plummet available.**

**54-290LP** Model 290LP Level with Laser Plummet

**54-300LP** Model 300LP Level with Laser Plummet



54-290LP



54-300LP



Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50 dated July 26, 2001

#### Level & Transit-Level Kits

Level and transit-level kits include the instrument with case and accessories, an aluminum quick clamp tripod, and a telescoping aluminum rod available in several lengths and graduations.

**54-135K** Model 135 Level Kit; includes #60-ALQCI21 tripod, and telescoping leveling rod

**54-136K** Model 136 Transit-Level Kit; includes #60-ALQCI21 tripod, and telescoping leveling rod

**54-190K** Model 190B Level Kit; includes #60-ALQCI21 tripod, and telescoping leveling rod

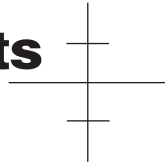
**54-200K** Model 200B Transit-Level Kit; includes #60-ALQCI21 tripod, and telescoping leveling rod

**54-203BUK** Model 203BU Transit-Level Kit; includes #60-ALQCI21 tripod, and telescoping leveling rod

**54-290K** Model 290B Level Kit; includes #60-ALQC25 tripod, and telescoping leveling rod

**54-300K** Model 300B Transit-Level Kit; includes #60-ALQC25 tripod, and telescoping leveling rod





**Speed Line**

**Our most popular models**, with rough angle turning and fine tuning adjustments. Clamps and tangents bring your instrument quickly on target. 15 minute horizontal circle on both models and 1° vertical arc on Model 200B allow you to set rough angles. Units have a 1/2" x 20 thread. Both models provide 1/4" accuracy at 100' (6mm at 30m) with a 200' (61m) working range.

- 54-190B** Model 190B Level Only
- 54-200B** Model 200B Transit-Level Only



54-190B



54-200B



**203B Speed Line Transit-Level**

**Improved with a 5/8" x 11 base**, so you can use it with a standard surveying tripod; no need to buy an additional tripod if you own one for an automatic level or laser. Also, the leveling base now has three leveling screws, the same as most automatic levels and lasers. Clamps and tangents bring your instrument quickly on target. 15 minute horizontal circle 1° vertical arc allow the builder to set rough angles.

**Features:**

- 5/8" x 11" universal base
- Improved 5 minute telescope vial provides 3/16" accuracy at 100 feet (5mm at 30m); 200 foot (61m) working range
- Stadia reticle: 1:100 ratio, 0 constant
- All-brass tangent and clamp screws, and non-strip focusing knob
- All new foam fitted carrying case for additional protection when not in use

- 54-203BU** Berger 20X Transit-Level  
\*54-193B Berger 20X Level is also available with the improved 5/8" x 11 base.



54-203B



**Econo Line**

**Fast set-up, simple to use.** Model 135 is designed strictly for leveling, and Model 136 is used for leveling and plumbing. Econo Line instruments have no circles or vertical arc. Units have a 1/2" x 20 thread. Both models provide 1/4" accuracy at 100' (6mm at 30m) with a 200' (61m) working range.

- 54-135B** Model 135 Level Only
- 54-136B** Model 136 Transit-Level Only



54-135



54-136

**Berger Optical Levels and Transit-Levels**

Cat. #	Magnification	Leveling Accuracy @ 100 ft.	Horizontal Angle	Vertical Angle	Working Range
54-135	20X	1/4"	n/a	n/a	up to 200 ft.
54-136	20X	1/4"	n/a	n/a	up to 200 ft.
54-190B	20X	1/4"	15'	n/a	up to 200 ft.
54-200B	20X	1/4"	15'	1°	up to 200 ft.
54-203B	20X	3/16"	15'	1°	up to 200 ft.
54-290B • -290LP	22X	1/8"	5'	n/a	up to 250 ft.
54-300B • -300LP	22X	1/8"	5'	1°	up to 250 ft.



## Berger Enclosed Transit – LTU

Top quality products for over 130 years.

### Berger Enclosed Transit: 1-Minute

**Tough, reliable, affordable**—Designed and manufactured for day in/day out performance on building sites.

Transit features a full transiting 20X telescope with exceptionally clear optics. The aluminum center mechanism is accurately machined and fitted.

- 5/8-in x 11 thread and three leveling screws.
- Includes a custom hard-shell case with instruction manual, rain cover, adjusting pin, two screwdrivers, lubricant, through compass, and diagonal eyepiece adapter with solar filter for both telescope and reader.
- **One year warranty.**

**56-SCT1** 20X 1 minute Enclosed Transit



56-SCT1

### Line Transfer Unit (LTU)

Almost indispensable in obtaining line and invert in pipe laying operations when using a pipe laying laser instrument, our Line Transfer Unit can be used with pipe aligning lasers or as a transit-level. The LTU allows fast setup and double-checking of laser's grade, and can also be used for leveling and grading work.

**The Berger Model 609 LTU** is a heavy-duty, highly accurate, 24X instrument with a 5 minute horizontal circle and built-in sunshade.

- Stress resistant dome shaped leveling heads and a double stainless steel ball bearing center contribute to this unit's reliability.
- 3-1/2" x 8 thread base.
- Includes custom hard-shell carrying case, Allen wrench, adjusting pin, plumb bob with string, dust cap, and manual.
- **One year warranty.**

**56-609** Berger LTU



56-609

#### Berger Optical Transits / Theodolites

Cat. #	Magnification	Leveling Accuracy @ 100 ft.	Horizontal Angle	Vertical Angle	Working Range
<b>Enclosed Transit</b>					
56-SCT1	20X	1/8"	1'	1'	up to 250 ft.
<b>Line Transfer Units</b>					
56-609	24X	1/8"	5'	---	up to 300 ft.
<b>Digital Theodolites</b>					
56-DGT10	30X	1/16"	10"	10"	up to 400 ft.
56-BDT30	30X	1/8"	30"	30"	up to 400 ft.

## Digital Theodolite

With use of an improved encoding detection system, these instruments display easy to read precise readouts. Simple push button functions provide all the information in degree or percentage. 30 power telescope provides a bright wide field of view and the 3 power built in optical plummet is essential for fast setups.

### Features:

- 10 second (DGT-10); 30 second (BDT-30) vertical and horizontal readout
- **Single LCD** display – BDT-30  
**Dual LCD** display – DWT-10
- Vertical angle measuring: provides three different options plus percent graden  
Clockwise or Counter-Clockwise angle reading
- Automatic power shut-off with three options: none, 20 minute, or 30 minute
- Optical plummet
- Zero resetting
- Built-in battery pack can be attached and detached by a single action
- Vertical and horizontal readings shown on one big screen
- Water resistant, sealed construction
- Includes hard-shell carrying case, manual, batteries and accessories: sunshade, tool kit, rain cover, drying cloth, and plumb bob
- **One Year Warranty**



▼ DGT10 Units have Dual Sided LCD Displays with Controls

56-DGT10

**56-BDT30** Berger 30 second Digital Theodolite

**56-DGT10** Berger 10 second Digital Theodolite



Easy-to-Read LCD Display



Optical Plummet



56-BDT30

## Digital Theodolite/Transit Accessories

The Diagonal Eyepiece is for use in areas where large buildings or obstacles prevent an ideal working distance between the Theodolite and target object. With the eyepiece, any target can be measured as long as the distance is at least 4-1/4' (1.3m) between the instrument and target. Angles and points can now be measured by the telescope in any direction. The eyepiece provides an erect image, and 1°-30' angle of view. The Solar Filter is used on the Theodolite to prevent glare under bright sunlit conditions, or when the sun must be sighted to determine position.



56-DTEP



56-DTSF

**56-DTEP** Diagonal Eyepiece

**56-DTSF** Solar Filter

# CST/Berger Automatic Levels

Top quality products for over 130 years.

## Automatic Levels: PAL Series and SAL "N" Series



### Features:

- Magnetically dampened, wire-hung compensator for optimum range and accuracy
- Compensator lock protects instrument during transport or storage; also acts as a handy compensator checking tool
- Large effective aperture and minimum focus of 1 foot (0.3m)
- Top-mounted optical peep-sight for quick reference
- Large, easy-to-use precise focusing knob
- Easy-to-read horizontal circle
- Right angle prism for easy bubble viewing
- Sealed, dust-protected leveling screws
- Water-resistant, sealed construction plus sunshade for use in various weather conditions
- Fine motion knobs on left and right sides with friction-braked rotation, endless horizontal drive
- 1:100 stadia for distance estimation
- 5/8-in x 11 threads to fit standard tripods
- Available in 360 degrees or 400 gons; please specify
- **Five Year Warranty**
- Includes hard shell carrying case with dual latches, lens cover, plumb bob, Allen wrench, adjusting pin, and manual



### PAL Series Automatic Levels

Get the latest features and technology with PAL Automatic Levels!

**55-PAL22** 22X PAL Automatic Level

**55-PAL26** 26X PAL Automatic Level

*NOTE: Please add "D" for degrees or "G" for gons after the catalog number (e.g. 55-PAL22D).*



55-PAL22



55-PAL26



Automatic Levels include Hard Shell Carrying with Dual Latches, Lens Cover, Plumb Bob, Allen Wrench, Adjusting Pin, and User's Manual.

### PAL and SAL Models

#### Telescope

Image: Erect	Minimum Focus: 1 ft. (0.3m)	Length: 8" (202mm)
Resolution: 3.5" (9cm)	Field of View: 1°20'	Stadia Addition: 0
	Stadia Ratio: 1:100	

#### Horizontal Circle

Diameter: 4" (10cm)	Numbered Every: 10° (10 gon)
Minimum Division: 1° (1 gon)	

#### Center:

<b>Circular Level Vial:</b>	Sensitivity: 8' (2mm)
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#### Compensator:

Type: Wire Hung, Magnetically Dampened	Working Range: ±15'
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#### Tangent:

Style: Continuous Drive
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<b>Leveling Head:</b>	Three (3) Screws
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<b>Tripod Fastener:</b>	5/8" x 11 (M16), Flat or Dome Head Tripods
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<b>Instrument Net Weight:</b>	4 lbs. (1.8kg)
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Right Angle Penta Prism for Easy Bubble Viewing



Compensator Lock Protects Instrument During Transport

**SAL "N" Series Automatic Levels**

Set up fast, are easy to use, and save time and money on every job. The SAL Series offers your choice of options: magnification, accuracy, and price.

**Use for:** Decks, Landscaping, Swimming Pools, Home Building, Foundations, Roadwork, Excavations AND MORE!

- 55-SAL20N 20X SAL N Automatic Level
- 55-SAL24N 24X SAL N Automatic Level
- 55-SAL28N 28X SAL N Automatic Level
- 55-SAL32N 32X SAL N Automatic Level

*NOTE: Please add "D" for degrees or "G" for gons after the catalog number (e.g. 55-SAL20ND).*

55-SAL28ND



**Automatic Level Kits**

Each money-saving kit includes an automatic level with case and accessories, plus a #60-ALQC120 aluminum tripod, and a #06-808C leveling rod.

- 55-PLVP22N\* 22X PAL Auto-Level Kit
- 55-PLVP26N\* 26X PAL Auto-Level Kit
- 55-SLVP20N\* 20X SAL N Auto-Level Kit
- 55-SLVP20\* 20X SAL Auto-Level Kit
- 55-SLVP24N\* 24X SAL N Auto-Level Kit
- 55-SLVP24\* 24X SAL Auto-Level Kit
- 55-SLVP28N\* 28X SAL N Auto-Level Kit
- 55-SLVP32N\* 32X SAL N Auto-Level Kit

*\*-Metric Kits: please add "M" for metric kits, which will include 60-ALQC120 tripod and 06-804M telescoping rod.*

**Specifications**

	SAL Series				PAL Series	
	20X	24X	28X	32X	22X	26X
Magnification	20X	24X	28X	32X	22X	26X
Leveling Accuracy	1/16" @ 200'	1/16" @ 150'	1/16" @ 200'	1/16" @ 250'	3/32" @ 150'	1/16" @ 200'
Working Range	200' (61m)	300' (91m)	350' (107m)	400' (122m)	250' (76m)	325' (99m)
Angular Accuracy	1° / 1gon					
Clear Objective Aperture	36mm		40mm		36mm	40mm
Compensator Setting Accuracy	± 0.8"		± 0.5"	± 0.3"	± 0.8"	± 0.5"
Standard Deviation for 1km Double-Run Leveling	2.5mm	2.0mm	1.5mm	1.0mm	2.0mm	1.5mm

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