



# UTILITIES



Electric  
Water, Gas, Pipeline  
Telecommunication

Pole Audit, Vegetation Management, Line Sag, and Tension  
Facilities Mapping, Offset Mapping, Offset Trench Locations  
Site Inspection, Antenna Height, Tower Mapping

PROFESSIONAL MEASUREMENT



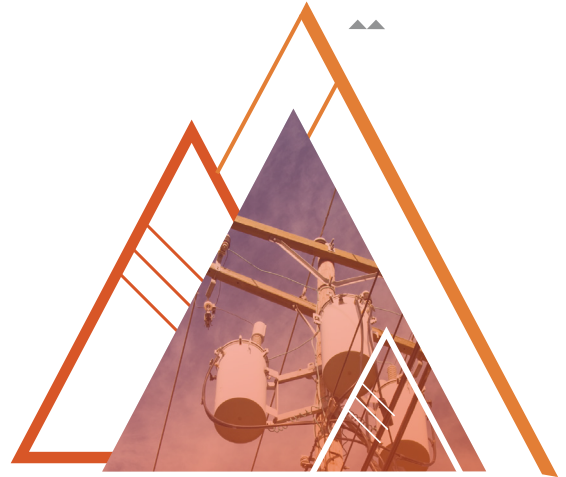
## POLE AUDIT

NESC regulations and permits require space management on poles for communication, supply, and safety zones to be measured and recorded accurately, and taken periodically:

- GNSS location
- Span and Line Sag to adjacent Poles
- Wire Separation
- Attachment Heights of all Assets
- Roadway Clearance

Laser rangefinders efficiently acquire measurements directly to attachment points and anywhere along the lines:

- Increase worker safety
- Produce highly accurate field measurements
- Unaffected by high winds, steep terrain, or difficult access



## VEGETATION MANAGEMENT

NESC guidelines for safety ensure there is adequate vegetation clearance from power lines and all suppliers must comply with them. Failure to adequately manage tree growth within a transmission line's right-of-way can create major power outages caused by trees hitting the lines and the resulting property damage from fires.

### Critical measurements that need to be taken:

- Right-of-Way widths
- Height of trees and undergrowth
- Tree to conductor clearances



Laser rangefinders can acquire measurements directly to conductors and vegetation when performing your mitigation programs.

- Save time with the missing line routine for heights, widths, and clearances
- GNSS-laser mapping improves efficiency of locating facilities within ROW

## CLEARANCE AND SAG PROFILE

Collecting measurements of an existing power line can help determine upgrade capacity and power efficiency. Critical measurements are also needed for accurate tensioning of newly constructed lines.

Conductor clearance assessments over roadways is a critical area that needs to be closely monitored and measured periodically:

- Profile conductor for Span, Sag, and Tension
- Line Clearance over roadway or brush
- Spans and Widths

Laser rangefinders acquire data directly to conductors when performing your Tension calculations and Clearance checks:

- Sag Profiler app provides instant, non-contact results
- Use the Missing Line routine for heights, widths, and clearances from safe locations to improve efficiency



## WATER, GAS, AND PIPELINE

Asset and facility mapping is a critical element in the pipeline industry when undertaking a major GIS project. Avoid dangerous trench terrain and the hassle of obtaining permission from landowners to locate above ground and buried assets.

TruPulse laser rangefinders acquire non-contact data directly to your features from a safe location:

- Create locations for welds, seams, and other features that will be buried
- Speed up data collection by measuring multiple assets from a single location
- Reduce your liability, make sure your buried assets are mapped accurately

Occupying dangerous or hard-to-reach areas is a thing of the past, with the addition of laser measurements to your GNSS location. GIS apps will calculate remote coordinates for all features within sight:

- Verify property and ROW dimensions
- Check grade on slopes
- Site Inspection
- Laser Offset Mapping



## TELECOMMUNICATIONS

Telecom operations involve installing a new system or collecting existing position information for inventory purposes. Precise network design, including signal strength optimization, demands proper tower placement:

- Antenna Height
- Site Inspection
- Obstruction Mapping
- Tower Mapping

TruPulse laser rangefinders acquire measurements to small targets without needing to place a reflector at the target:

- No climbing towers and dropping a tape measure to verify antenna heights
- No more having to access rooftops of buildings or relaying messages trying to drive between distant towers for measurements
- Speed up data collection by collecting measurements from one location

**WIRED**

- Installing new lines on an existing pole requires good planning
- Obtaining attachment heights and wire separations
- Recording Span, Sag, and Clearances to adjacent poles

**WIRELESS**

- Verify antenna and tower height
- Determine direction, distance, and elevation change between an obstruction and your proposed tower placement

## MEASUREMENT SOLUTIONS

### 2D LASERS

**Measures:** SD and INC

**Calculates:** HD, VD, HT, and 2D ML

### 3D LASERS

**Measures:** SD, INC, AZ, and Angle Values

**Calculates:** HD, VD, HT, and 3D ML

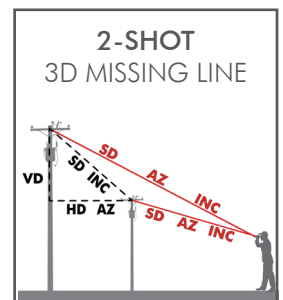
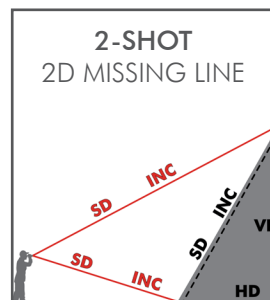
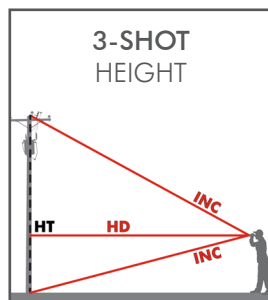
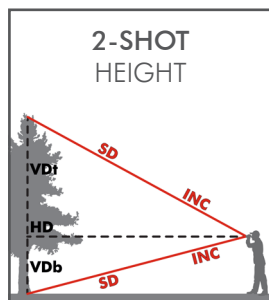
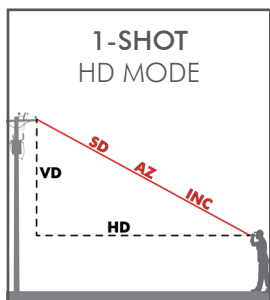
### LaserSoft® APPS

- Sag Profiler, Conductor Clearance
- Joint Pole, Pole Audit, Tape Drop

HD = HORIZONTAL DISTANCE    INC = INCLINATION    SD = SLOPE DISTANCE  
ML = MISSING LINE    AZ = AZIMUTH    HT = HEIGHT    VD = VERTICAL DISTANCE

Calculated by TruPulse -----

Measured by TruPulse \_\_\_\_\_



# PRODUCT SPECIFICATIONS



2D LASERS	TruPulse® L2	TruPulse® 200i	TruPulse® 200X
Distance Accuracy	± 50 cm (1.6 ft)	± 10 cm (4 in)	± 4 cm (1.5 in)
Max Range to Reflective Targets	2195 m (7,200 ft)	2500 m (8,202 ft)	2500 m (8,202 ft)
Inclination Accuracy	± 0.5° Relative	0.1° @ 0° to ±30° 0.2° @ ±30° to ±90°	± 0.1° Typical
Wireless Communication / App Compatibility	No	Windows® + iOS + Android®	Windows® + iOS + Android®



3D LASERS	TruPulse® 360i	TruPulse® 200X + MapStar® TruAngle® II
Measures Azimuth with TruVector Compass Technology	Yes	No
Distance Accuracy	± 10 cm (4 in)	± 4 cm (1.5 in)
Max Range to Reflective Targets	2500 m (8,202 ft)	2500 m (8,202 ft)
Inclination Accuracy	0.1° @ 0° to ±30° 0.2° @ ±30° to ±90°	± 0.1° Typical
Horizontal Angle Accuracy	N/A	± 0.1°
Azimuth Accuracy	< 1.0° RMS	N/A
Wireless Communication / App compatibility	Windows® + Android® + iOS	Android® + iOS