

## LTI TruPulse 200 Series Height Measurement Performance



A local service company wanted to quantify the height measurement error of the TruPulse series products, to determine whether it would meet their criteria for field use. Since their typical targets would be from 50 - 150' in height and the distances away from them 25 - 150', a test site was established adjacent to a high-rise office building. Good geometry dictates that your "top" angle be  $< 45$  deg. but we wanted to test the units above that in case conditions in the field forced a user into this situation.



\* The TruPulse 360 model shown will have the same Height accuracy as the 200 model

The table shows the data collected for the TruPulse 200 Series products. Control was shot in with a survey grade total station (“Height” column on left, in Feet). The horizontal distance away from the face of the building was measured at 76.93’. The green-shaded column represents data taken with the TruPulses mounted on a standard camera tripod. The blue-shaded data was taken hand holding the unit while standing over the mark. Most data points represent the edges of window panels visible on the outside of the building.

Analysis of the data shows all the TruPulses performing well within specification and the 200 & 200X meeting the company’s “sub-foot” accuracy requirement. The lasers even proved reliable on height measurements made with top angles > 45 deg. (red-shaded area), important to them as a time saving feature.

Height	200 L		200		200 X	
3.99	4.0	4.5	3.7	3.8	3’ 11”	3’ 10”
7.38	7.5	7.5	7.3	7.7	7’ 4”	7’ 3”
10.51	10.5	10.5	10.2	10.3	10’ 7”	10’ 8”
18.16	18.0	19.0	18.2	17.7	18’ 1”	18’ 2”
23.85	23.5	23.0	23.7	24.2	23’ 10”	23’ 11”
29.32	29.0	30.0	29.0	28.9	29’ 4”	29’ 3”
35.10	35.5	34.5	34.8	35.4	35’ 0”	35’ 3”
40.57	41.0	41.5	40.7	40.8	40’ 6”	40’ 7”
46.27	46.5	45.5	46.5	45.7	46’ 3”	46’ 2”
51.65	51.5	51.0	51.6	51.0	51’ 8”	51’ 5”
57.48	57.0	58.5	57.6	58.1	57’ 6”	57’ 7”
62.95	62.0	62.0	63.5	64.0	63’ 1”	63’ 1”
68.63	69.0	68.0	68.7	68.7	68’ 7”	68’ 5”
74.09	73.5	75.0	74.5	74.7	74’ 0”	73’ 11”
79.96	80.5	81.0	79.9	79.5	80’ 1”	79’ 10”
85.41	85.0	86.5	85.9	85.1	85’ 6”	85’ 7”
91.16	90.5	90.0	91.2	91.5	91’ 0”	91’ 4”
96.30	96.0	95.0	96.4	95.4	96’ 2”	96’ 0”
102.42	103.0	101.5	102.7	101.5	102’ 7”	102’ 9”
<b>Std Dev</b>	0.5’	1.0’	0.25’	0.5’	0.9”	1.8”

### Typical\* Height Accuracies by Product

Product	Method	Accuracy @ 25 m (75’)	Accuracy @ 50 m (150’)
TruPulse 200L	Tripod mounted	15 cm (6”)	30 cm (12”)
	Hand held	30 cm (12”)	60 cm (2’)
TruPulse 200/360/R	Tripod mounted	8 cm (3”)	15 cm (6”)
	Hand held	15 cm (6”)	30 cm (12”)
TruPulse 200X	Tripod mounted	2 cm (1”)	4 cm (2”)
	Hand held	4 cm (2”)	10 cm (4”)

\* data based on typical real-world performance, not worst-cased specifications

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