

Compact High-Speed Ballistic Tracker System



Built on award winning flight follower system

Multiple tracking modes

Manual positional adjustment

Integrated high-speed camera options

The Specialised Imaging Tracker^{Lite} is a smaller, lighter system that retains the core functions of the Award winning Tracker² system.

Manual adjustment of three axis rotation and a single input for real-time velocity adjustment contribute to the simplification of the system.

Built on a standard tripod, the fully weatherproofed mirror and camera housing allow a dual line of high-speed video cameras and long focal length lens options.

Custom software controls the Tracker system and provides calculators for Tracker placement, camera fields-of-view and velocities.

FEATURES

- Multiple operating modes allow capture of decelerating, accelerating, user defined velocity profiled projectiles
- Scan ratio range from 1 to 40
- Scanning accuracy of $\pm 0.2^\circ$.
- Gigabit ethernet communications
- Built in camera power, communications and trigger
- No calibration required

OPERATING MODES

Fixed Velocity	Single trigger using known velocity
Velocity	The scan is corrected using the measured velocity from at least 2 of the 3 available detector inputs.
Position	The scan position is corrected from the detector inputs. Known velocity is assumed.
Drag	The scan is corrected using the measured velocity and drag from 3 detector inputs.
Pre-defined profile	Programmable Velocity Vs Time curve. Triggered using single trigger. Used for non-linear projectile trajectories.
Advanced User Functions	Specialised Imaging is prepared to customise modes of operation to user requirements.
Skewed Geometry	Allows non perpendicular operation

OPERATING PARAMETERS

Scan Ratio (SR)	1 to 40 (defined as the ratio of projectile velocity/stand-off distance)
Scanning range (Max.)	-50° to +50°
Scanning Distance	>=2x standoff distance (distance from the line of flight to Tracker2)
Scanning Accuracy	±0.2°
Calibration	Not required
Projectile Velocity	SR x Standoff distance
Projectile Drag	0 to 100 m/s/m
Acceleration Angle	1° - 5° depending on scan rate (defined as the angle required to accelerate the mirror from rest to full scanning speed)

ENVIRONMENTAL

Storage temperature	-10°C to +74°C
Operating temperature	-5°C to +45°C
Warmup Period	Not Required
Humidity	10 - 90% RH non-condensing
Operational vibration	10G, 10-40Hz Max, any direction
EMC	Meets all EC harmonized standards

INPUT / OUTPUT SIGNALS

Detector In	BNC
Number of inputs	3
Trigger In	Rising or Falling Edge pulse Make/break
Camera Trigger	TTL positive pulse
Communication Interface	Data and command transfer via 1Gbps ethernet cable
Software	Custom software compatible with Microsoft Windows Operating Systems for control and data archiving in various file formats

MECHANICAL

Dimensions mm (w/d/h)	650 x 230 x 310 (without tripod)
Weight	16kg / 35lbs (without camera and lens)
Mount	3/8-16 UNC Female

CONTROL UNIT

System Clock	10MHz quartz crystal controlled
Trigger Jitter	<1us

MIRROR

Type	Optical flat elliptical surface silvered
Size (HxW) mm	135 x 85

INTEGRATED CAMERA OPTIONS

Tracker^{Lite} -A	Photron FASTCAM Mini AX100 – 1024x1024 @ 4,000pps
Tracker^{Lite} -V	Phantom VEO4 10L 1280x800 @ 5,200pps

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