

Tracker²



Comprehensive High-Speed Linear Tracker System



Award winning flight follower system

Multiple tracking modes

Remote control motorised adjustment

Multiple high-speed camera options

The Specialised Imaging Tracker² is the next generation of projectile tracking platforms for high-speed video and measurement.

Full motorised remote control of three axis rotation and multiple inputs for real-time velocity adjustment contribute to the evolution of this award-winning system.

Built on a sturdy mount, the fully weatherproofed mirror and camera housings allow a large range 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

- Full remote control operation
- Multiple operating modes allow capture of decelerating, accelerating, user defined velocity profiled projectiles
- Scan ratio range from 0.1 to 100
- 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 8 available detector inputs.
Position	The scan position is corrected from the detector inputs. Known velocity is assumed.
Drag / Acceleration	The scan is corrected using the measured velocity and drag / acceleration from at least 3 of the 8 available 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)	0.1 to 100 (defined as the ratio of projectile velocity/stand-off distance)
Scanning range (Max.)	-60° to +60°
Scanning Distance	>=2x standoff distance (distance from the line of flight to Tracker2)
Scanning Accuracy	±0.2°
Positional Accuracy	±0.018°
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 +50°C
Warmup Period	Not Required
Humidity	10 - 90% RH non-condensing
Operational vibration	10G, 10-40Hz Max, any direction
EMC	Meets all UKCA/EU harmonised standards

INPUT / OUTPUT SIGNALS

Detector In	BNC
Number of inputs	8
Trigger In	Make/Break, Positive or Negative edge, Threshold variable to ± 17V 50Ω or 1KΩ termination
Camera Trigger	TTL positive pulse
Communication Interface	Data and command transfer via 1Gbps ethernet cable length 100m (standard). Other lengths available 1000FX fibre optic ethernet link (up to 2Km) - optional
Software	Custom software compatible with Microsoft Windows Operating Systems for control and data archiving in various file formats
Electrical input	Mains 100-240V AC 50-60Hz

MECHANICAL

Dimensions mm (w/d/h)	1340 x 670 x 590 (without tripod)
Mount	Tripod Included

MIRROR

Type	Optical flat elliptical Silicon Carbide Mirror
Size (HxW) mm	135 x 85 x 2

CONTROL UNIT

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

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