

Compact High-Speed Linear Tracker System



**Developed from the award winning
Trajectory Tracker² 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.

Simplification of the Tracker² system includes manual alignment adjustment with projectile flightpath, and three inputs for real time projectile velocity variation adjustment.

Mounted on heavy, stable tripod, the fully weatherproof mirror/camera housing allows smaller high-speed video cameras with long focal length lenses to be used.

Custom software controls the Tracker and triggering set up, provides calculators for camera fields-of-view and depth of focus for different cameras, lenses and Tracker locations.

FEATURES

- Multiple operating modes allow capture of decelerating, accelerating, user defined velocity profiled projectiles
- Scan ratio (SR) range from 1 to 40 (Optional 1 to 100)
- Typical scanning accuracy of $\pm 0.2^\circ$.
- Gigabit ethernet communications
- Built in camera power, communications and trigger
- No calibration required
- Optional 32 trigger inputs

OPERATING MODES

Fixed Velocity	Single trigger using assumed initial velocity
Velocity	The scan is corrected using the measured velocity from 2 detectors.
Drag / Acceleration	The scan is corrected using the measured velocities and calculated drag from 3 detector inputs.
Pre-defined profile	Programmable Velocity vs Time curve. Triggered using single trigger. Used for non-linear projectile trajectories.
Position	The scan position is corrected by detector inputs
Advanced User Functions	Specialised Imaging is prepared to customise modes of operation to user requirements.
Skewed Geometry	Allows asymmetric scan

OPERATING PARAMETERS

Scan Ratio (SR)	1 to 40, or 1 to 100 (defined as the ratio of projectile velocity/stand-off distance)
Scanning range (Max.)	-50° to +50°
Scanning Distance	≥ 2 x standoff distance (shortest distance between Tracker and line of flight)
Scanning Accuracy	± 0.2° (SR>80 accuracy ± 0.5°)
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 UKCA/EU harmonised standards

INPUT / OUTPUT SIGNALS

Detector In	BNC
Number of inputs	3 (Optional 32)
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
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)	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

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