



PRODUCT INFORMATION

# *TraXync server*





—Smart Interaction, Immersive Visual Experience

TraXync is an innovative interactive control solution designed for professional stage environments such as theaters, concert halls, and live performances.

### **Real-Time Computing & Wireless Coordination**

TraXync Server Powered by AI algorithms, wireless sensing, and computing technologies, the system delivers fluid stage performances with perfectly synchronized lighting effects, creating unprecedented audience immersion.

### **Smart Automated Operation**

Traditional tracking systems rely on manual operation, which is subject to human experience and requires high levels of skill and concentration. The TraXync reduces dependency on human operators, cuts labor costs, and significantly improves precision, stability, and adaptability.

### **Multi-Dimensional Integration**

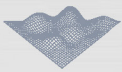
TraXync Server goes beyond lighting tracking by integrating with immersive audio and video servers to enable synchronized sound and visual tracking, delivering multidimensional, all-round functionality for stage performances. It offers both UWB and vision-based tracking systems, with simple and fast installation and commissioning for real-time 3D positioning.

Solution A: The UWB tracking system uses a Spatial Positioning Base working with a 3-Axis EM Tag to precisely measure signal propagation time or time difference between the base station and the tag, thereby calculating the beacons real-time distance for tracking.

Solution B: The vision tracking system is centered on the MD Hyper-Sense Processor, working with Hyper-Sense Trackers and MD Beacons to obtain performers 3D (X,Y,Z) coordinates and (6DoF) pose in real time, creating an immersive experience in which the scene moves with the performer.



**Rear Panel Diagram**



## FEATURES

- **Tracking Range:**

Compatible with UWB and vision positioning for a high-precision, low-latency tracking ecosystem across different scenarios. Solution A (UWB Tracking):

Wireless coverage up to 20 m radius, 100 m for PRO.

Stable anti-interference, latency  $\leq 20$  ms.

Tracks up to 8 interactive objects, or 255 for PRO.

Solution B (Vision Tracking):

Interchangeable telephoto and wide-angle lenses for different spaces.

2.8 mm, 9 mm image size (1/1.8"), F1.6-F16, FOV  $172^\circ \times 160^\circ \times 108^\circ$ .

3.5 mm, 9 mm image size (1/1.8"), F2.4-C, FOV  $104.5^\circ \times 94.3^\circ \times 78^\circ$ .

6 mm, 9 mm image size (1/1.8"), F2.8-16, FOV  $73.49^\circ \times 63.11^\circ \times 44.59^\circ$ .

Stable anti-interference, latency  $\leq 10$  ms.

Tracks up to 8 independent targets, or 255 for PRO, each with a unique ID.

- **Smart Control:**

Supports PosiStageNet, ArtNet, DMX, and OSC protocols, enabling seamless integration with mainstream international lighting consoles, immersive audio servers, and video servers.

Customized partition tracking allows for autonomous segmentation of the 3D space according to specific needs, enabling the definition of distinct lighting effects, sounds, and video materials for each interactive object.

- **Multi-Dimensional Interaction:**

Delivers flexible multi-object, multi-fixture tracking by combining audio and lighting synchronization perfectly suited for dynamic live performances.

- **AI-Powered Precision:**

Dual-beacon ultra-high-accuracy correction algorithms deliver precise interaction and positioning data for stage performances. The system automatically adjusts spotlight aperture based on the real-time location of tracked subjects.

## Application Scenarios:

Theaters, Concert Halls, Live Shows, Cultural Tourism, Award Ceremonies, Fashion Shows, TV Productions, Film Shoots.

### Model: TraXync Server

Processor:	Intel 64bit 2core CPU	Storage:	8GB RAM, 128GB SSD
Control Channel Number:	1×RS485, 1×RS232	Supported Protocols:	
DMX512:	1024(2×RJ45)	OSC, RS485, RS232, UDP, ArtNet, DMX512	
ArtNet Input:	16 Universes	ArtNet Output:	16 Universes
Video Interface:	1×HDMI	USB :	2×USB2.0
Network Interface:	1×WAN 7×LAN	Power Supply:	DC12V-3A
Weight:	3.3kg	Dimensions:	482mm x 248mm x 46mm



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- Supports fully waterproof connectors with IP67 protection.
- Equipped with a precise temperature control system for fast thermal balancing.
- Uses multispectral fusion technology and supports automatic color correction.
- The Gigabit Ethernet interface supports transmission up to 100 m without relay.
- Compatible with GigE Vision V2.0 and GenICam for seamless access to third-party software.

Model: Hyper-Sense Tracker

Sensor Type: CMOS, global shutter	Resolution: 1440 × 1080
Sensor Model: Stacked BSI	Max Frame Rate: 180 fps @ 1440 × 1080 Mono8.
Optical Format: 1/2.9"	Dynamic Range / SNR: 68.5 dB / 44 dB
Pixel Format: Mono8/10/10Packed/12/12Packed	Gain: 0 dB to 24 dB
Exposure Time: 23 μs to 10 s	Waterproof Rating: IP67 (with all accessories properly installed)
Mirroring: Supports horizontal & vertical mirroring	Power Supply: 9 - 24 VDC, PoE supported
Digital I/O: 1 opto-isolated input (Line0), 1 opto-isolated output (Line1), 1 bidirectional configurable non-isolated I/O (Line2)	Data Interface: 8-pin M12 X-code waterproof connector, Gigabit Ethernet (1000 Mbit/s), compatible with Fast Ethernet (100 Mbit/s).
Operating Systems: Windows 7/10 32/64-bit, Windows 11 64-bit, Linux 32/64-bit.	Weight: Approx. 124 g

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- Determines the spatial position of a target by detecting its infrared radiation, enabling precise positioning and trajectory tracking in space
- In specific infrared bands, the signal is less affected by complex electromagnetic environments and offers strong anti-interference capability.



Model: MD Beacon

Power Supply: Built-in 3.7 V 2000 mAh lithium battery, supports Type-C Quick Charge.
Physical Interfaces: 3 SMA RF connectors, 1 Type-C charging/data port.
Dimensions: 96 × 66 × 25 mm.
Weight: Approx. 100 g.

The MD Hyper-Sense Processor connects multiple Hyper-Sense Trackers over a standard network, captures real-time data, and performs multi-view geometric solving. It outputs precise 3D coordinates and attitude angles, providing high-accuracy position and orientation data for spatial positioning and motion analysis.

FEATURES

- Single-Cable Connection: One cable carries both power and communication for simple and efficient deployment.
- Multi-Target Tracking: Tracks 255 independent targets at the same time, and each target has a unique identity.
- 6DoF Pose Solving: For rigid-body targets with markers, it fully solves spatial position and orientation.
- Modular Framework: Can be flexibly configured according to different sites, improving adaptability.

SCENE

- Motion Capture: Records and analyzes human and animal motion for animation and rehabilitation.
- Robot Navigation: Supports multi-robot positioning, autonomous navigation, and path planning.
- Industrial Automation: Enables assembly monitoring, precision inspection, and safety intrusion warning.
- Virtual Reality: Provides spatial positioning for headsets, controllers, and other interactive devices.
- Determines the spatial position of a target by detecting its infrared radiation, enabling
- Sports Science: Captures athlete motion and posture data for analysis and training optimization.



Model: MD Hyper-Sense Processor

Processing Core: Intel 64-bit 8-core CPU	Control Protocols: OSC, UDP
Memory/ Storage: 8 GB RAM, 512 GB SSD	Spatial Information: X, Y, Z, Yaw, Pitch, Roll
Video Interface: 1 × HDMI	Max Speed: 80 km/h
USB Interface: 4 × USB 3.0	Power Supply: AC 220 V, redundant dual power
Vision Sensor Input: 255ch	Dimensions: 430 × 385 × 90 mm
Capture Rate: 100 Hz	Weight: 7.6 kg
Network Interface: 1 × RJ45, 1 Gbps	



## PRODUCT INFORMATION

### FEATURES

- Based on UWB (Ultra-Wideband) communication technology.
- Supporting local positioning, distributed ranging, and data transmission.
- All nodes automatically form a wireless network. No cabling or server is required, and the modules perform real-time solving.
- Integrates positioning, navigation, timing, and communication (PNTCC), with the same hardware configurable as a tag, base station, console, node, primary unit, or secondary unit.

High capacity and high refresh rate: 40 tag / 8 base stations / 1 console @ 50 Hz.



#### Model: Spatial Positioning Base

Monitoring: Voltage monitoring, reverse protection

Power Consumption: 1.1 W @ LTP-AC; 1.35 W @ LTP-B

Communication: Supports UART and USB communication

Frequency: 6.5 GHz, 6 RF bands, adjustable transmit gain from 0 to 33.5 dB

Power Supply: [3.6, 5.5] V @ LTP-AC / LTP-B

Coverage: Radius up to 20 m; PRO version up to 100 m

Weight: Approx. 45 g

Dimensions: 46.3 × 56 × 12 mm



#### Model: 3-Axis EM Tag

Waterproof Rating : IP66

Communication: Supports USB communication

Positioning Accuracy: 30 cm accuracy, 15 cm standard deviation

Power Supply: Built-in 2000 mAh battery, USB 5 V charging

Optimal Frequency Bands

Weight: Approx. 75 g

Dimensions: 70 × 46 × 18.5 mm