

SHOTOKU VIRTUAL SYSTEM

- SHOTOKU CAMERA TRACKING SYSTEM FOR VIRTUAL REALITY STUDIOS -

SIMPLE : STAND-ALONE SYSTEM

Shotoku embedded physical encoder position tracking technology eliminates the need for external markers, ultrasonic or infrared sensors reflectors, cameras or special floor surfaces. Creating a virtual studio has never been this easy.

EASY : FAST CALIBRATION

Each channel (Zoom, Focus, Pan, Tilt, Elevation and Steering) need only to be moved through their respective zero points
- Full calibration is achieved in less than thirty seconds.



SPI-TOUCH TO-32

SHOTOKU Patented SPi-TOUCH (TO-32)

- Easy X-Y origin referencing using our patented 2-point calibration system
- Local VR data offset function for practical, instant fine-tuning.

REAL-TIME DATA OUTPUT

Processing of all sensor positions is achieved within 1 msec meaning that truly real-time data is output to the Graphics system without lag or delay. The algorithms can even calculate the correct camera position in free-moving crane systems, combining the position of the dolly and the boom angle and elevation.

THE HEART OF SHOTOKU VR Tracking

The heart of the SHOTOKU VR Tracking is the " SPI ". The SPI, or Serial Positioning Interface, monitors the data from all the encoders and sensors, and using proprietary algorithms determines the absolute position of the camera's optical center. The resultant data, using industry standard protocols, is sent out to the graphics system synchronized to Video reference.

Using highly accurate rotation measurements on each wheel as well as the steering angle data, The SPI is able to locate the pedestal relative to the origin sheet anywhere in the studio, These measurements also generate pedestal rotation data which is added to the head pan angle to provide true pan angle information.

SUPPORT 360° CHOOSE YOUR POINT OF VIEW.

360

GRAPHICA

VIRTUALLY ANYWHERE

The Graphica Series is the fusion of superb SHOTOKU VR technology and the engineering know-how of the prestigious crane maker, CamMate. The result is a product with industry-leading VR tracking capabilities in a package that is portable, scalable, stable and, most importantly, repeatable.

CamMate cranes have been in use in the television and film industry for over 20 years and, with a philosophy of continuous improvement, are admired for their quality of engineering and the creative camerawork made possible by the smoothness and control of the high-performance servos.

Graphica calculates positional data output from embedded physical rotary encoders designed specifically for VR applications. Free of the jitters, external markers, and area limitations often associated with other positional tracking systems, Shotoku encoders seamlessly process data via the SPI interface to provide real-time data output, in the studio or on location.

The SPi-TOUCH Origin Reset and 2-Point Calibration function adds another level of convenience and high production flexibility. Complete calibration of the system is needed only once after booting-up and can be achieved in 20 seconds, allowing the crew valuable additional time for setting camera position and for shot composition. SPi-Touch comes standard on every model.

Suitable for all types of production, 7 models of varying lengths are available to create dynamic camerawork in the smallest studios or the largest of outdoor sporting events. Custom-made carry cases for easy transport are included with every purchase.

CRANE SPECIFICATIONS

Model	Graphica 250	Graphica 370	Graphica 490	Graphica 640	Graphica 770	Graphica 960	Graphica 1240
System Overall Length	2,500mm (8.2ft)	3,700mm (12.1ft)	4,900mm (16.1ft)	6,400mm (21ft)	7,700mm (25.3ft)	9,600mm (31.5ft)	12,400mm (40.7ft)
Reach	1,500mm (4.9ft)	2,700mm (8.9ft)	3,900mm (12.8ft)	5,100mm (16.7ft)	6,400mm (21ft)	8,100mm (26.6ft)	10,000mm (32.8ft)
System Max. Lens Axis Height	2,100mm	3,100mm	3,900mm	4,900mm	6,100mm	7,300mm	6,800mm
Total Weight (Without Counterweight)	approx. 82kg / 180 lbs	approx. 86kg / 189 lbs	approx. 95.7kg / 211 lbs	approx. 102kg / 224 lbs	approx. 147kg / 324lbs	approx. 174kg / 383 lbs	approx. 232kg / 510 lbs
Estimated Counterweight	30kg / 66lbs	81kg / 178lbs	138kg / 305lbs	136kg / 300lbs	191kg / 420lbs	270.5kg / 595lbs	232.7kg / 512lbs
Dolly	3-Wheel	3-Wheel	3-Wheel	3-Whee	3-Wheel	4-Wheel	4-Wheel
Head Max. Payload	16 kg / 35 lbs*	16 kg / 35 lbs*	16 kg / 35 lbs*	11.5 kg / 25 lbs*	11.5 kg / 25 lbs*	11.5 kg / 25 lbs*	11.5 kg / 25 lbs*

* Consult your Shotoku representative for payload requirements over recommended max payload.



Pictured: Graphica 370

FEATURES

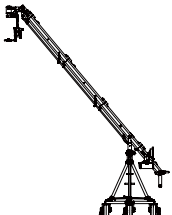
- Shotoku high-end VR crane technology embedded.
- Designed jointly with CamMate (purpose-built for VR production).
- Comfortable and familiar joystick and pistol grip operation.
- High-quality and attention to engineering detail.
- Simple operation: 20 seconds to calibrate, set-and-forget system.
- Ultra-high resolution and high reliability: 640,000 counts/360°
- Data output in Real Time.
- Precision physical tracking system: Zero backlash, Ultra-high resolution.
- Wide product range for every application.
- Highly-portable design: Custom casing included.



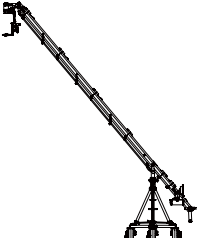
Graphica 250



Graphica 370



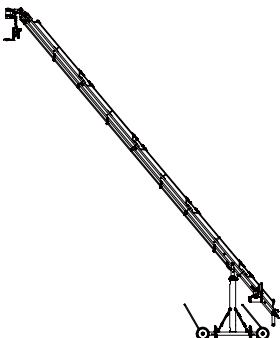
Graphica 490



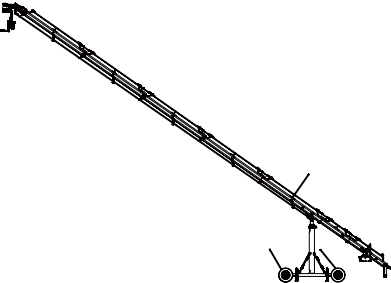
Graphica 640



Graphica 770

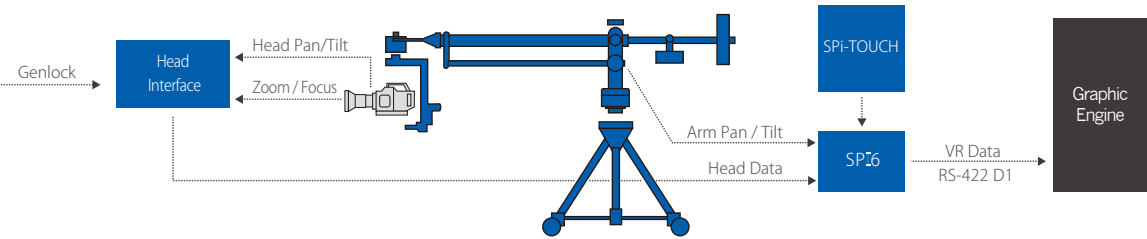


Graphica 960



Graphica 1240

SIMPLE : STAND-ALONE SYSTEM



VR SPECIFICATIONS

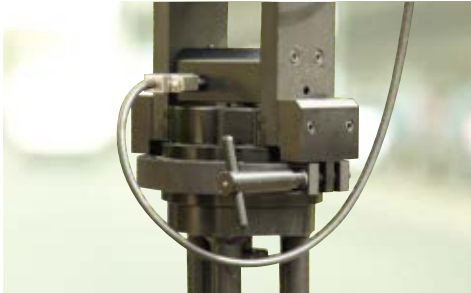
Calibration System	SPI-TOUCH : X-Y Origin Point Offset Function (2-point Calibration System)
Power Consumption	AC 100-240V +/- 10% Less than 150W
Temperature Range	0°C - 40°C
Input Signal	CAMERA SYNC, PTZF; CRANE PT
Output Signal	RS-422 D1 Protocol (PTZF, Camera X, Camera Y, Camera Z)
Compatible Graphic Engines	Most Major Graphic Engines
Head Pan/Tilt Resolution	640,000 counts per 360°
Arm Pan/Tilt Resolution	640,000 counts per 360°

Lens

Control and Position Cables	Standard 12-pin or 20-pin Interface Cable for Integrated Virtual Encoder Lenses
Control Mechanism	Joystick and Pistol Grip
Mechanical Lens Encoder (Optional)	TY-05

DOLLY SPECIFICATIONS

Dolly	3-Wheel	4-Wheel
Height	1.4m (4.6ft)	1.5m (4.9ft)
Footprint	1.3m (4.3ft)	1.1x1.8m (3.6x5.6ft)
Weight	32 kg / 70 lbs	110kg / 243lbs
Max. Payload	300 kg / 660 lbs	1200kg / 2,645 lbs



High-Precision Crane Sensor System

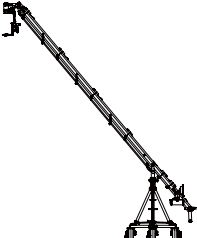
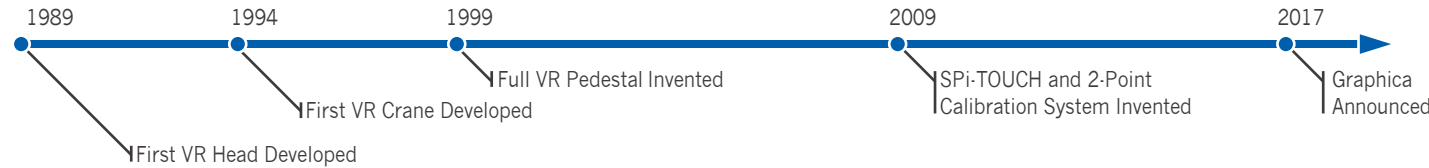


High-Performance Joystick Control Unit



SPi-TOUCH 2-Point Calibration System

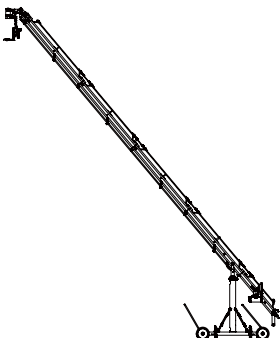
HISTORY OF SHOTOKU VR TECHNOLOGY



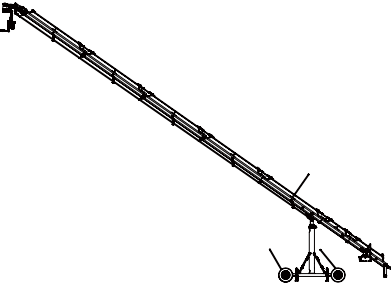
Graphica 640



Graphica 770



Graphica 960



Graphica 1240