

OMC Product Guide – Adjustable Stereo System

The OMC adjustable stereo system provides end users and developers with a means of rigidly holding two cameras in a fixed orientation while allowing adjustment if required. Various base lengths can be chosen by selection of alternative tubes.



Introduction

Stereo measurement is a powerful technique for: detection of deformation, shape measurement, tracking features, six degrees of freedom computation, dimensional measurement, face recognition, and many similar uses.

In the past it has been necessary to construct stereo camera mounts for each and every project. If the mounts were adjustable they could often be unstable and if rigidly constructed then a redesign was necessary for each new project.

OMC have worked with Rolls Royce, BAe Systems and Airbus to create a new design of portable stereo system that is deployable in the field at short notice. This system enables the user to create a stereo measurement system to suit the majority of medium range applications before separate mounting of the cameras becomes necessary for practical reasons.

Features

- Rigid – carbon fibre tubes
- Adjustable – camera angles can be set
- Stable – low expansivity carbon fibre and Invar mounts.
- Adjustable clamp
- Adjustable mount
- Variable base lengths via multiple tubes

Further information

Four carbon fibre tubes of 250, 450, 750 and 1000 mm in length and 40 mm diameter with a wall thickness of 4 mm.



One part of the adjustable end assembly is glued into the ends of the tubes (see next figure)



The other part of the adjustable end is fixed to the camera (see next figure).



The system allows for the camera angle to be varied in approximately 9 degree steps (see following figures).



The carbon fibre tube is held in position using a clamp that allows rotation of the assembly. Further adjustment is provided by a ball joint.



Application

OMC can provide the tools necessary to calibrate the stereo cameras and determine the relationship between the cameras. Further tools can be supplied in order to perform such operations as: 3-D measurements for deformation monitoring and dimensional inspection, as well as for 6-degrees of freedom measurements robotic tasks.

Typically OMC will work with the client to integrate the measurement system into a given application.