

LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY
- LIGO -
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Naming and Interface Definition for ASC Initial Alignment
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Detector Group

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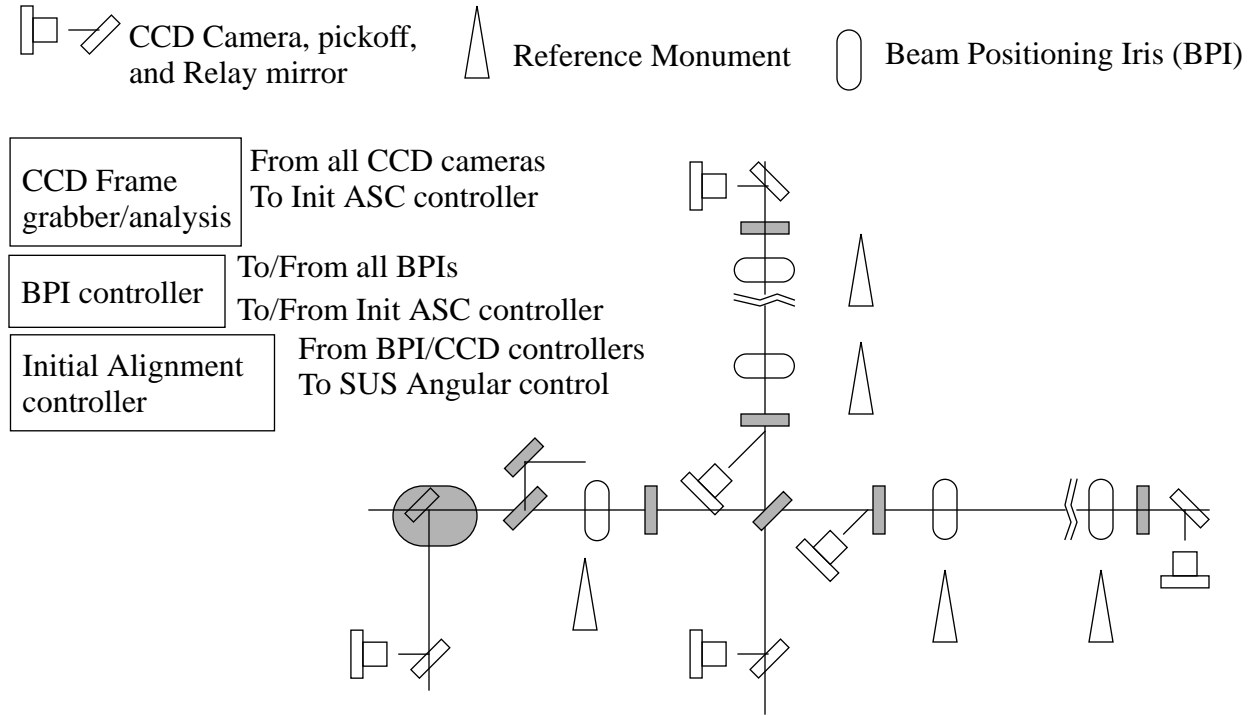
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1 NAMING CONVENTION

We illustrate here the naming conventions for the ASC Initial Alignment Subsystem Components. All names in the drawing are preceded by 'ASC Initial Alignment Subsystem'. The shaded objects are not part of the ASC Initial alignment subsystem.



Detail of Beam Positioning Iris (BPI) at manifold reducer

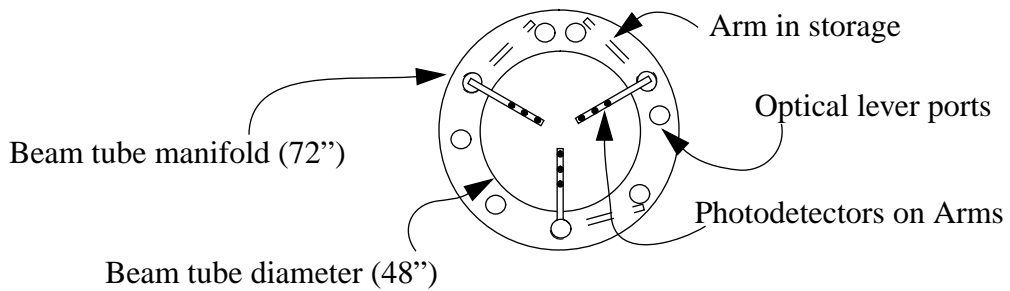


Figure 1: ASC Initial alignment subsystem

2 MECHANICAL INTERFACES

Refer to Figure 1 in Section 1: Naming Convention.

<i>Mechanical Mounting Interfaces</i>			<i>Drawing/ Doc #</i>
<i>ASC Initial Alignment Mounting Surface</i>	<i>Other Subsys Mounting Surface</i>	<i>Interface and its Characteristics</i>	
BPI Arm pivot at manifold reducer	Vac Eq manifold reducer	Bolts/screws • bolt hole pattern	
BPI Arm pivot at recycling cavity	Vac Eq TBD	Bolts/screws • bolt hole pattern	
CCD camera relay mirror mounting tab	Vac Eq or SEI	Bolts/screws • bolt hole pattern	
CCD camera	FAC (maybe ASC monument)	Bolts/screws • bolt hole pattern	
Reference Monument	FAC floor	Bolts/screws • bolt hole pattern	
<i>Critical Dimension/Size</i>			<i>Drawing/ Doc #</i>
Position of the Reference monument (GPS to ~1 mm)			
Position of the Centering Sensors w.r.t. nominal center of suspended masses (check ASC Wvfnt/Cntr for this)			
Position of CCD pickoff mirrors w.r.t. beam			
Position of CCD Cameras w.r.t. beam			
Position of BPI Arm w.r.t. Reference Monument (0.1 mm precision)			

Table 1: Mechanical interfaces between ASC Initial Alignment and other Detector subsystems

3 SIGNAL INTERFACES

Please refer to Figure 1 in Section 1.

<i>ASC Initial Alignment Control Signals</i>
<p>Signal Inputs</p> <ul style="list-style-type: none"> • LSC error signals • <p>State Inputs</p> <ul style="list-style-type: none"> • Acquire bootstrap • Acquire recovery • <p>Signal Outputs</p> <ul style="list-style-type: none"> • Angular control signals to suspended components • Laser intensity (low/high) <p>State Outputs</p> <ul style="list-style-type: none"> • bootstrap alignment acquired • recovery alignment acquired

Table 2: Control Signal interfaces between ASC Initial and other detector subsystems

4 OPTICAL INTERFACES

See Figure 1. We call out interfaces with the GW-sensing beam.

<i>ASC Initial Alignment Interface</i>	<i>Other Subsys Interface</i>	<i>Interface and Its Characteristics</i>	<i>Drawing/ Doc #</i>
CCD pick-off splitter	<ul style="list-style-type: none"> transmitted light through test mass wedge beam from input test masse Faraday beam 	<ul style="list-style-type: none"> beam gaussian parameters pickoff ratio 	
Beam Positioning Iris	<ul style="list-style-type: none"> beam before recycling mirror beam at vertex manifold reducer beam at mid/end manifold reducer 	<ul style="list-style-type: none"> beam gaussian parameters power (different states) 	

Table 3: Optical interfaces between ASC Initial Alignment and other Detector Subsystems

5 INTERFACES EXTERNAL TO THE DETECTOR

These fall naturally into the description of interfaces above, and therefore no separate accounting of them has been made.