

# Common Mode Summing Node

## Description

The sensing path of the interferometer common mode servo can be taken from the in-vacuum sensor, the in-air sensor or the ALS common arm length signal. Since the common mode servo board only supports two inputs, an additional summing node is required. The common mode summing junction features two inputs that are summed together the same way as in the input section of the common mode servo. Its output feeds one of the inputs of the common mode servo. Two of these boards can be mounted in a single chassis, making it possible to add up to four different inputs into a single common mode servo board.

## Specifications

### Summing Junction

Input 1:

- $\pm 10\text{V}$  differential
- TNC
- polarity switch
- enable switch
- gain slider  $-32\text{dB}$  to  $+31\text{dB}$

Input 2:

- $\pm 10\text{V}$  differential
- TNC and 2-pin LEMO
- polarity switch
- enable switch
- gain slider  $-32\text{dB}$  to  $+31\text{dB}$

Output 1 (after sum and filter):

- $\pm 10\text{V}$  differential
- TNC and 2-pin LEMO

Output 2 (auxiliary):

- $\pm 10\text{V}$  differential
- TNC
- Selectable between inputs 1 and 2

DAQ outputs:

- $\pm 10\text{V}$  differential

- 9-pin D-sub, female, front
- input 1, input 2, sum and output 1

Slow controls:

- 37-pin D-sub, female, rear

Transfer function:

- >1 MHz bandwidth
- 1 generic boost stage, switchable
- 1 generic filter section, switchable
- 1 option section, switchable
- Offset adjust for full  $\pm 10\text{V}$  input range

## **Chassis**

Physical:

- 2 summing junctions per chassis
- 19" rack mount
- 1U

Power:

- $\pm 16.5\text{V}$  and  $\pm 24\text{V}$