K-Plate Node PCB

The K-Plate Node PCB, located on the top of K-Plate, has two controllers, both which communicate via CAN to the System Link Manager/CPU module.

Ti-DSP:

- Controls FOUP advance function using close loop Step motor and encoder.

- Controls FOUP Hold Down function using an open loop DC motor, and position sensor.

- Provides approximately 30 general purposes I/Os.

- Monitor FOUP status through 7 on board sensors

- Communicates with system CPU via CAN

PIC-Controller:

- Controls RFID communication and RF power; and communicate with System CPU via CAN.

Integrated AdvanTag Circuitry. The main component of the integrated AdvanTag circuitry is a transmitter that generates radio waves through an antenna. This TIRIS compatible low-frequency (134.2kHz), low-power RF energy is used to read from or write to a transporter near the antenna. The 134.2kHz carrier from the RFID-ASIC is amplified to the proper levels to drive the dual MOSFET power amplifier. This provides a 12Vp-p low impedance drive to the antenna circuit. The antenna is a series resonant LC circuit resonated at 134.2kHz to achieve maximum voltage on the antenna.

Cam Activated Pod Hold Down

The FOUP is held down and cannot be manually removed from the Falcon unless the APHD is released.

– Very fast acting (0.40 seconds)

– No adjustments necessary

Sensors

FOUP Presence Sensors. One Emitter/Receiver pair located in the Status Display board (emitter) and FOUP Advance Plate (receiver) to detect whether a FOUP is present on the Advance plate (the load/unload area).

FOUP Placement Sensors. There are 3 FOUP placement sensors, incorporated into the FOUP Advance Plate; each sensor is located near a kinematic pin. The placement sensors work in parallel to provide accurate detection of a FOUP that is correctly placed on the FOUP Advance Plate/kinematic pins.

InfoPad Sensors. The Falcon provides for InfoPad sensors and/or a mechanical interlock pin to be installed at four location on the FOUP Advance Plate. InfoPads Sensors are used to distinguish between FOUP identities based on info plugs installed on the underside of a FOUP. A mechanical lockout pin can be placed in any InfoPad position. If the pin is placed in the "A" location, then a FOUP with the "A" location blocked cannot be placed properly onto the loadport. This is to prevent wafers in certain FOUPs from entering a process tool.