

Prime Photonics' Data Capture Unit (DCU) is the data acquisition module for the FOCIS™ optical blade tip timing and blade tip clearance system.

Our DCU is based on a National Instruments controller mounted in a PXIe chassis with Prime Photonics proprietary data capture card (DCC).

We use various chassis sizes to customize the system to the number of channels required for each application. Up to 64 channels (16 cards) can be packaged in a single chassis. More channels are available by using several chassis synchronized together. Blade tip timing measurements require 1 channel per probe; blade tip clearance measurements require 2 channels per probe.

The DCU receives analog waveform signals from blade passages and converts them into measured quantities: time of arrival (TOA) of the blade for blade tip timing, distance for blade tip clearance, or rotor speed of rotation.

Signal Digitization

Our Data Capture Card digitizes the entire signal and allows the use of different user-selected trigger points to register a blade passing event. Users can select trigger types based on their blade geometry and simultaneously store data from multiple trigger configurations, allowing more flexibility when performing post-test blade vibration analysis.

Signal Conditioning Control

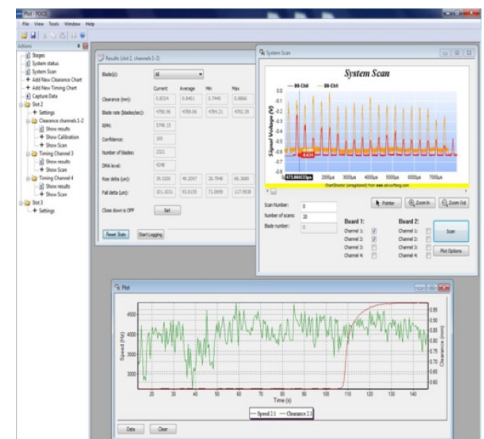
The data capture unit communicates with our Sensor Interface Unit (SIU) via an Ethernet connection. Lasers can be turned on and off, and all lasers and detector parameters can be modified from the data capture unit.

Test Monitoring

Our Data Capture Unit comes loaded with our FOCIS™ software for test setup, data acquisition, and real-time test monitoring. Data from the FOCIS software can be streamed in several formats, or stored as native FOCIS files, CSV files, or CDT files for use in post-processing software from Apex Turbine.



Small DCU with one Card



FOCIS™ Software

KEY PARAMETERS

- 4 to 64 Data Channels
- 100 MHz Sampling Rate (per channel)
- BNC Input Connectors
- TTL Signal input for 1/rev sensor
- Outputs: Ethernet, serial, PXIe bus
- 30-120 °F (0-50 °C) Operating Temperature
- Available Standalone or with brackets for 19" rack
- 110/220 VAC Standard