

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

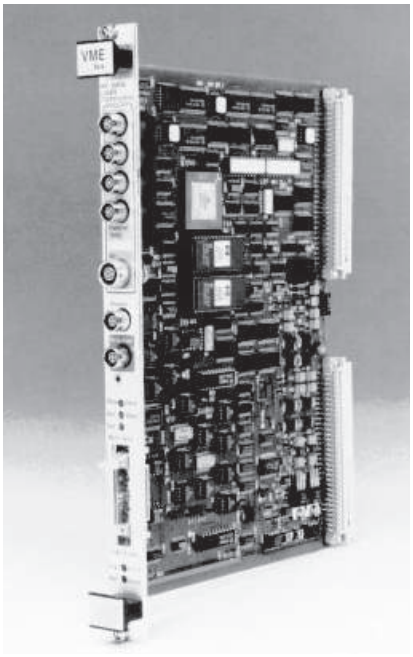
Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Keysight / Agilent 10896B* at our website: ***Click HERE***

Keysight 10896B Laser Compensation Board

- Calculate absolute wavelength of light
- Monitor changes in wavelength of light
- Monitor stage temperature effects



Improve system accuracy and repeatability using Keysight 10896B VMEbus laser compensation electronics.

Compensating for environmental effects increases system accuracy

Every laser-interferometer positioning system depends on the laser's wavelength of light (WOL) as its basic scale length. However, in air the laser's WOL depends on the air's index of refraction, which is a function of air temperature, pressure, relative humidity, and gas composition. The 10896B Laser Compensation Board can be used with both the 10897B High Resolution Laser Axis Board and the 10895A Laser Axis Board to increase the accuracy and repeatability of the laserinterferometer positioning system by compensating for the changes in WOL due to changes in your system's operating environment.

The 10896B can perform WOL compensation in different ways. For all compensation schemes, the 10896B's firmware automatically produces a compensation number that adjusts the position measurements of all axes in the system.

For greatest accuracy and repeatability, a 10717A Wavelength Tracker can be used to provide measurement repeatability up to ±0.14 parts per million (ppm). This technique uses an additional laser axis and tracks changes in the air's index of refraction.

Another technique uses environmental sensors to measure the values of air temperature and pressure and account for ambient humidity. The 10896B then uses these values to calculate the appropriate WOL compensation number using Edlen's equation.

The 10751C/D Air Sensor can be used to provide an accuracy up to ±1.4 ppm. Alternatively, you can use your own environmental sensors to send information to the 10896B. The 10896B also allows you to compensate for thermal expansion of objects under control by measuring their temperature and correcting back to a standard temperature. This allows you to further improve positioning accuracy by compensating for all environmental effects. Again, you have a choice of material temperature sensors. You can use sensors purchased from Keysight (the 10757D/ E/F Material Temperature Sensor) or your own temperature sensors.

The 10896B is a single-width front panel, 6U-size board. It uses advanced surface mount technology to provide reliable, compact electronics. Like all VMEbus laser electronics from Keysight, the 10896B has a three-year warranty.

The 10896B supports a wavelength tracker, an air sensor, and up to four temperature sensors. Any of the four temperature sensor inputs can be programmed for use with custom sensors. For design flexibility, the sensor input signals can be routed to the front panel or the board's VMEbus P2 connector.

Specifications

Environmental Sensors

10717A Wavelength Tracker
10751C/D Air Sensor
10757D/E/F Material Temperature Sensor (up to four)

Resolution
Wavelength Tracker: 5 nm
Analog Sensor Inputs: 76.3 m

Backplane I/O Characteristics

All backplane I/O signals are TTL compatible. Refer to the Keysight 10896B manual for further details

Sensor inputs: ±2.5 volts

General Information

VME Compliance
Complies with VME Specification Rev. C.1
Single width
6U size

A16 Data Transfer Cycles
A24 Data Transfer Cycles
D08 (OE) Data Transfer Cycles
D16 Data Transfer Cycles
D08 (O) Interrupt Acknowledge Cycles

Power Requirements
+5 Vdc +0.25 V/–0.125 V
at less than 2.8 A
+12 Vdc +0.6 V/–0.36 V
at less than 0.4 A
–12 Vdc –0.6 V/+0.36 V
at less than 0.4 A

Cooling Requirements
19 linear meters (60 linear feet) per minute minimum for 0–40°C operation
76 linear meters (250 linear feet) per minute minimum for 0–55°C operation
Cables (if system includes 10717A):
10880A/B/C Receiver Cable
10881A/B/C/D/E/F Laser Head Cable

Axis Cabling (if system includes 10717A):

Specify	for
Option 002	2 axis system
Option 003	3 axis system
Option 004	4 axis system
Option 005	5 axis system
Option 006	6 axis system

Weight: 0.45 kg (1 lb)

Ordering Information
For ordering information please see the Price List.

Compensation
Environment:
Pressure: 760 mm ±25 mm Hg
Relative Humidity: 50% ±10%
Temperature: as shown

	Measurement Accuracy*		
	±0.1°C	±1.0°C	±5.0°C
No compensation** (@20°C)	±9.0 ppm	±9.9 ppm	±14.0 ppm
10751C/D Air Sensor (@20°C and 10886A)	±1.5 ppm (typical)	±1.6 ppm	±1.7 ppm
Wavelength Tracking Compensation***	±0.15 ppm	±0.19 ppm	±0.44 ppm
Measurement in Vacuum	±0.1 ppm	±0.1 ppm	±0.1 ppm
Measurement in Vacuum with factory Calibration of Laser Head to MIL STD 45662	±0.02 ppm	±0.02 ppm	±0.02 ppm

*These accuracy specifications include the laser head term, but exclude electronics accuracy and interferometer nonlinearity terms.
**No compensation means that no correction in compensation number occurs during environmental changes.
***System accuracy equals these values (measurement repeatability) or a calibrated laser head plus accuracy of initial compensation value.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP