

# FIBER OPTICAL DATA GLOVE GHOST - FEEL IT.



## AT A GLANCE

Multifunctional fiber optical sensor platform embedded in data gloves as human-machine interface

Motion capture, temperature and contact pressure monitoring

Digitalization of human feeling – expanding human perception

### Features

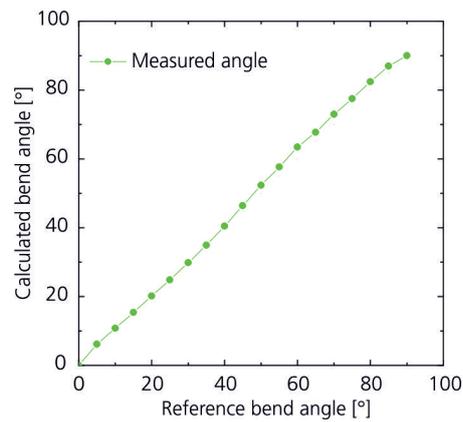
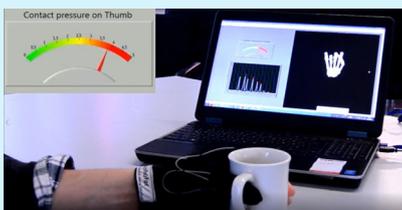
- Multifunctional fiber optical sensor array for motion capture, contact pressure and temperature monitoring
- Battery-powered standalone system
- 3D position sensor
- Wireless interface to VR/AR glasses

### Applications

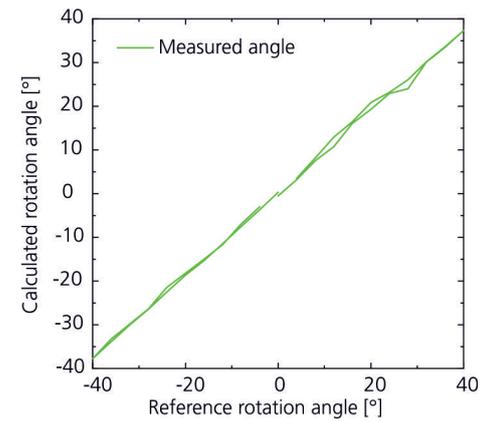
- Motion capture
- Human-machine interface
- Robotics
- Telemedicine
- Work safety
- Assisting aging working force

### Technical Background

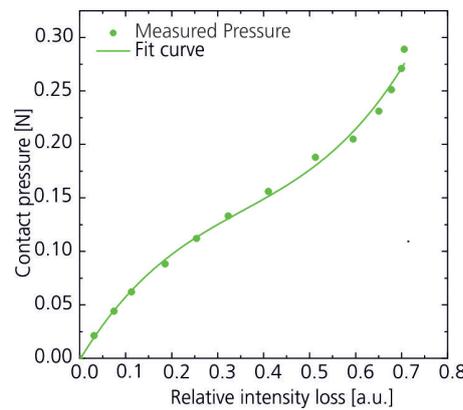
The multifunctional fiber optical sensor platform based on fiber Bragg grating (FBG) technology processed by femto-second laser. Hand motion capture, contact, and temperature monitoring are realized with this multifunctional fiber sensors embedded in a glove. A wireless interface enables the communication and visualization of sensor data in smart glasses. The data glove enables encoded interaction with a medical actuator cuff for communication with nerves expanding human perceptions.



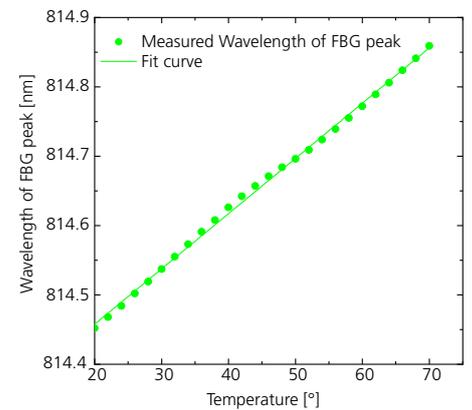
Measurement of bend sensor



Measurement of rotation sensor



Measurement of contact pressure sensor



Measurement of temperature sensor

Prof. Dr. Wolfgang Schade  
Fiber Optical Sensor Systems

Phone +49 321 3815-8420  
info-fs@hhi.fraunhofer.de

Fraunhofer Heinrich Hertz Institute  
Am Stollen 19H, 38640 Goslar  
Germany

[www.hhi.fraunhofer.de/fs](http://www.hhi.fraunhofer.de/fs)

### Specifications

- Realtime motion capture (**50 fps**)
- Integrated pressure sensor (**0-50 N**)
- Integrated temperature sensor (**-20°C + 300°C**)
- Wireless interface (**WiFi/Bluetooth**)
- Battery-powered (**1000 mA**)
- Visualization in smart glasses

### Realted Projects

- Enhanced working place safety in steel industry (Miopas GmbH)
- Medical therapy (Ghost feel it.)