

Robotic Surgery Force Interface Mini™

Industry: OEM, Medical and Healthcare

Summary

Customer Challenge

A biomechanical medical company wants to test the force, torque, and tactile feedback from their robotic arm for invasive surgery. The surgeon's movements are mirrored by the robotic arm during surgery, and it is essential all haptic force feedback is measured to ensure safety during invasive surgery.

Interface Solution

A number of Interface's force and torque measurement products have been used on this robotic arm. These include the ConvextBT Load Button Load Cell, SMTM Micro S-Type Load Cell, and the MRTP Miniature Overload Protected Flange Style Reaction Torque Transducer. Force results can be collected when connected to the BX8 8-Channel Data Acquisition and Amplifier, and viewed when attached to the a laptop.

Results

Each one of Interface's load cells or torque transducers played a part in the ensuring the safety and functionality of robotic arms during invasive surgery. The force feedback that was measured from the robotic arm ensured that the robot used the perfect amount of force when using surgical tools that create incisions during surgeries. It also measured the torque being produced, ensuring the robot arm was moving smoothly and at the right speeds.

Materials

- ConvextBT Load Button Load Cell
- SMTM Micro S-Type Load Cell
- MRTP Miniature Overload Protected Flange Style Reaction Torque Transducer
- BX8 8-Channel Data Acquisition and Amplifier with included BlueDAQ Software
- Customer's PC or laptop
- Robotic Arm

How It Works

ConvextBT Load Button Load Cell- Used to measure the force of specific surgical tools themselves, such as clamps and pinchers.

SMTM Micro S-Type Load Cell- Mounted at the tool attachment mechanism, can measure the exact forces being applied to surgical tools.

MRTP Miniature Overload Protected Flange Style Reaction Torque Transducer- Mounted between the robot arm's motor and joint, to measure the torque of the arm's movements.

BX8 8-Channel Data Acquisition System and Amplifier- Results from all three force sensors can be viewed and recorded using the BX8.

