



Compact and lightweight

Force-Torque-Sensor for LWA3

EXCEPTIONAL PRECISION FROM THE COMPETENCE LEADER!

Highly flexible

The Light-Weight-Arm F/T Sensing Package gives the robot the ability to measure forces and torques in all axis and react to those loads. It is designed to be compact and lightweight, works with operating voltages from 12VDC to 24VDC and offers a standard CAN bus communication interface.

The package consists of a Mini45 Force/Torque Transducer with a 12mm through-hole and an integrated signal conditioning, data acquisition and CAN bus interface board. The Transducer mounts to the wrist of the arm. Cables and other utilities pass through the 12mm through-hole. The electronic circuit board installs directly into a section of the robot arm.

Our performance – Your benefit

- 12mm center hole in the Transducer allows for routing utilities through the arm
- The interface electronics can be integrated in the arm
- The Transducer's calibration information is stored on the interface board and can be read via the CAN bus interface
- Different measurement ranges can be selected when ordered with additional calibrations (optional)
- Interface to an optional NetBox provides an Ethernet connection with up to 7000Hz data rate

Specifications

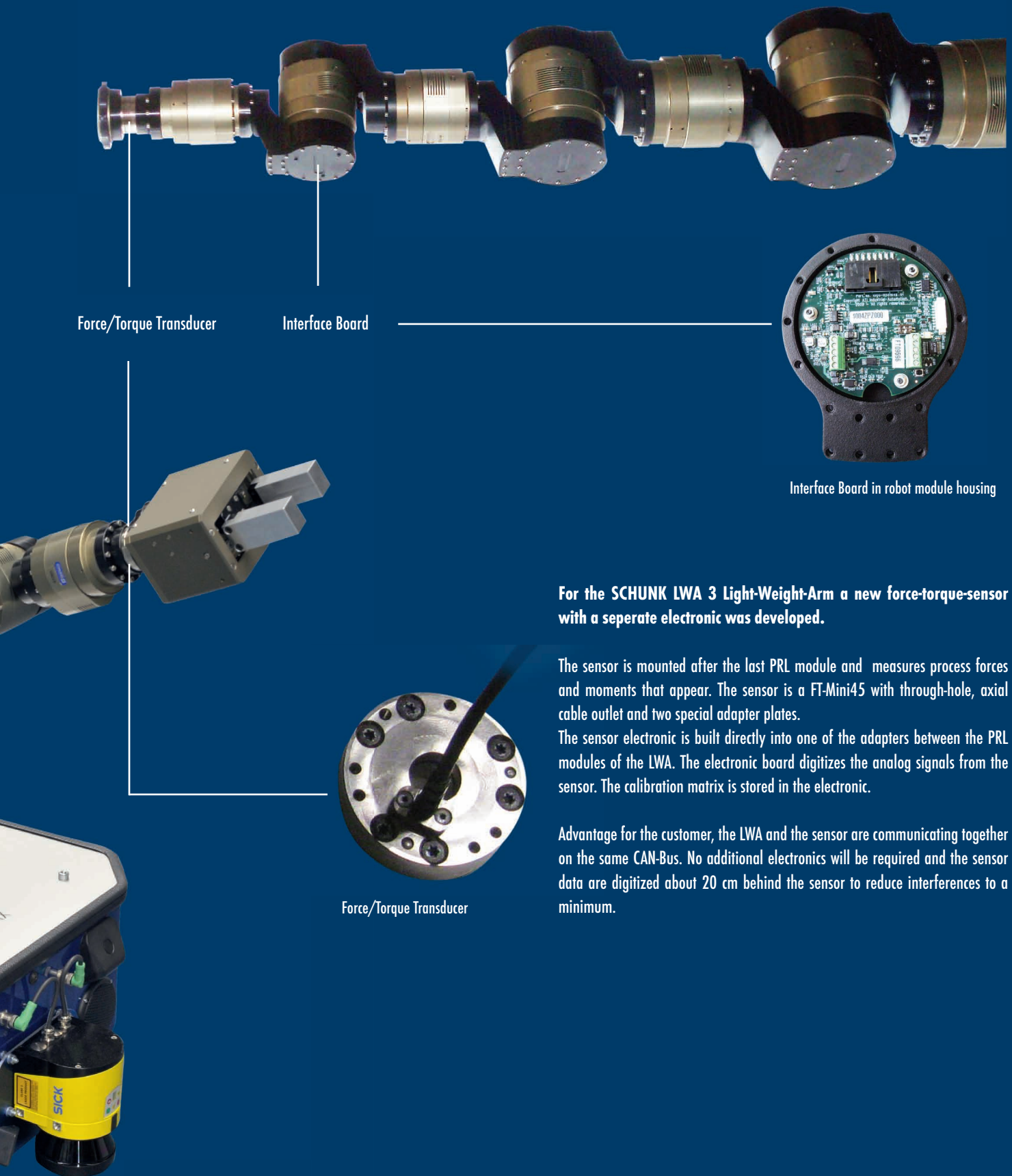
- CAN bus baud rate: Programmable between 7850Hz to 2MHz
- Data rate (CAN bus at 2Mbit baud rate): 7000Hz
- Power supply: 12VDC to 24VDC
- Power consumption: Max. 2.5W
- Interface Board dimensions: 65mm diameter, 12mm height, 22g weight
- Transducer dimensions: 45mm diameter, 16mm height, 90g weight (approximate)

Range of measurement

- Forces $F_{x,y}$ upto 580 N, F_z upto 1160 N
- Moments $M_{x,y,z}$ upto 20 Nm



Multi-Axis Force/Torque Sensing



Force/Torque Transducer

Interface Board

Interface Board in robot module housing

For the SCHUNK LWA 3 Light-Weight-Arm a new force-torque-sensor with a separate electronic was developed.

The sensor is mounted after the last PRL module and measures process forces and moments that appear. The sensor is a FT-Mini45 with through-hole, axial cable outlet and two special adapter plates.

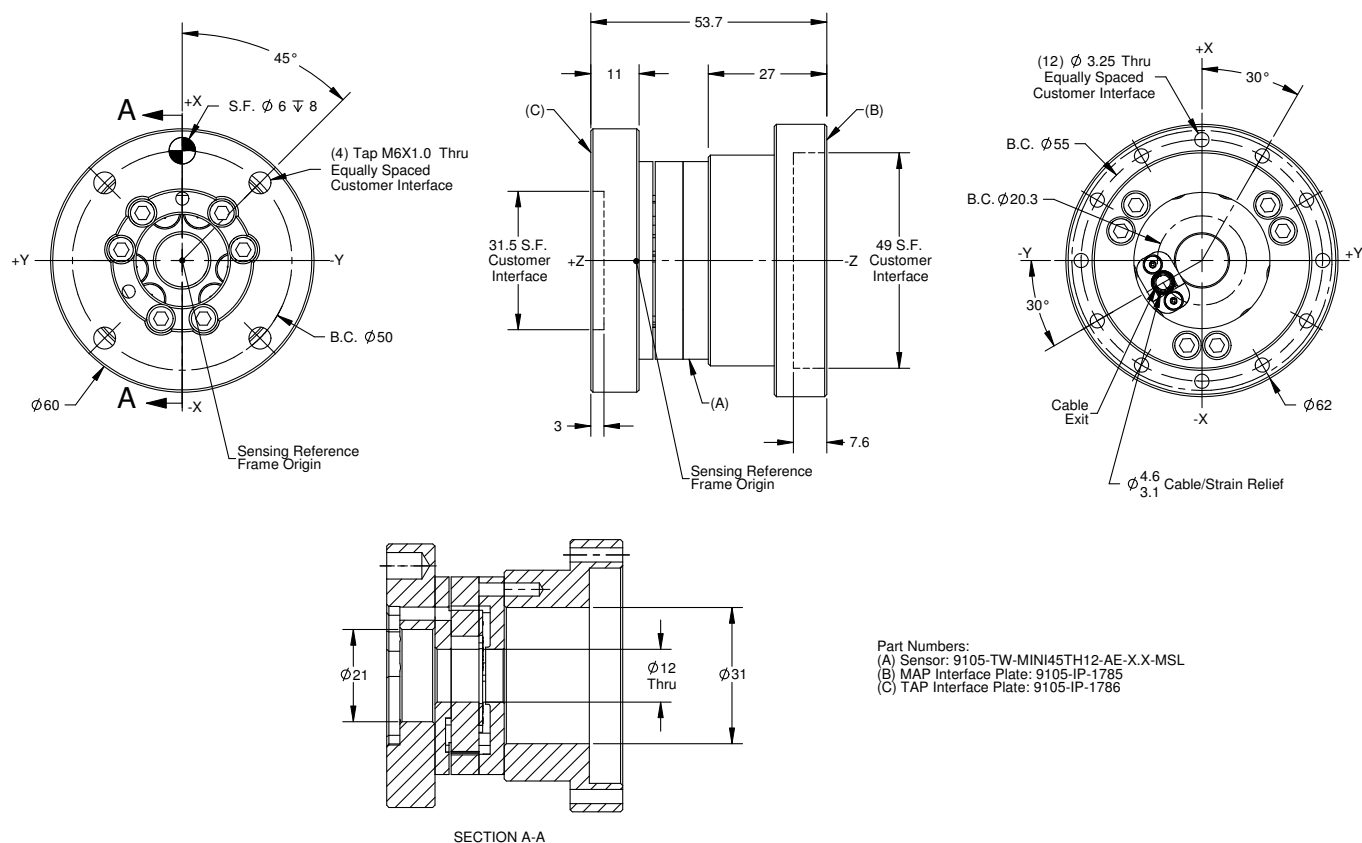
The sensor electronic is built directly into one of the adapters between the PRL modules of the LWA. The electronic board digitizes the analog signals from the sensor. The calibration matrix is stored in the electronic.

Advantage for the customer, the LWA and the sensor are communicating together on the same CAN-Bus. No additional electronics will be required and the sensor data are digitized about 20 cm behind the sensor to reduce interferences to a minimum.

A LWA3 is shown with a multi-axis force-torque sensor on a mobile platform used for mobile manipulation research. The sensors allows a precise admittance control of the manipulator and sensitive handling of objects.

LWA3 Force/Torque Transducer

Technical Data



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Please contact me

☐ for a consultation by phone

☐ for a personal consultation from the SCHUNK area sales manager

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