Stäubli TX2-90 Kit Datasheet

Key Features

- High accuracy force feedback for demanding applications
- Zero hysteresis & minimal drift
- Robust design & high stiffness
- Easy mounting and robot setup
- SRS integration with extended functionality available.
- Integrated IMU (acceleration and angular rate)

Configurations

Ordering number	Description
KIT-LAXS-TX2	LaxONE EtherCAT F/T sensor kit for Staubli TX2-90

List of Components

Please refer to the table for all sensor specifications. For additional information, consult our sales team at info@botasys.com

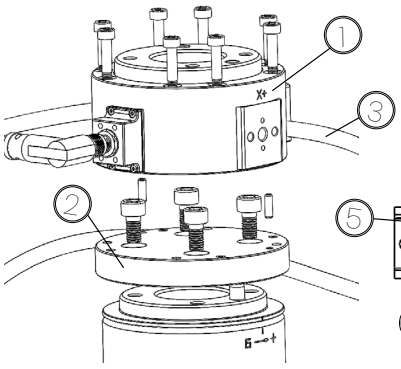

Figure 1

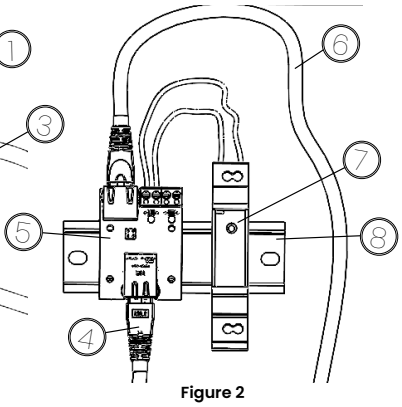

Figure 2

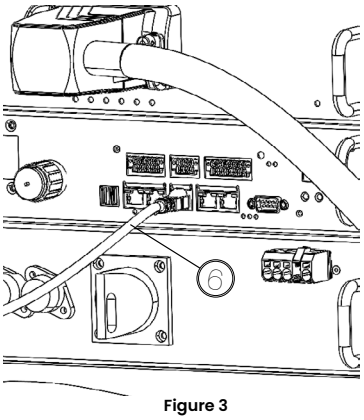

Figure 3

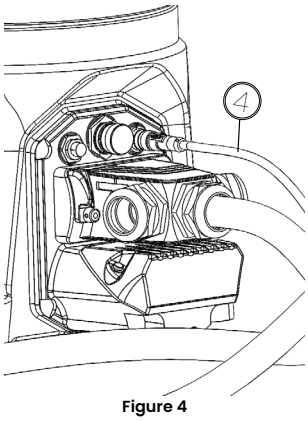

Figure 4

#	Component	Description	Included in configuration
1	BFT-LAXS-ECAT-M8	LaxONE 6-axis FT sensor with EtherCAT interface	All configurations
2	ACC-LAX-ISO-9409-1-50-4-M6	ISO 9409-1-50-4-M6 mounting kit for Laxone	All configurations
3	ACC-M12MRD-4Q-M8-ANGLE	Custom length cable with M12 angled to M8 angled for Staubli	All configurations
4	PRT-RJ45-M12FSD-4Q-5M	5m IP67 Ethernet CAT5e, shielded, 4-pin, RJ45 to Socket str M12, D-coded	All configurations
5	ACC-POE-AB	Din rail PoE injector/splitter mode A/B	All configurations
6	ACC-RJ45-RJ45	Cat6 RJ45 to RJ45 ethernet cable	Optional
7	PSU-DIN-12V-15W	15W 12V DIN rail power supply	Optional
8	ACC-DIN-RAIL	20 cm DIN rail	Optional

Mechanical Interface

The Staubli TX2-90 Kit includes all the necessary components to connect and operate the Staubli TX2-90 with the sensor (BFT-LAXS-ECAT-M8 [1]). To mount the sensor on the robot flange, the adapter (ACC-LAX-ISO-9409-1-50-4-M6 [2]) is recommended. This adapter includes all the screws and pins needed for its proper assembly on the robot **[Figure 6]**. It is possible to desgin custom adapters if additional end-of-arm tooling needs to be mounted. The kits include the necessary cabling to wire the sensor inside **[Figure 7]** and outside **[Figure 5]** of the control box. The cabling and all the connections on the robot side are **IP67 rated**.

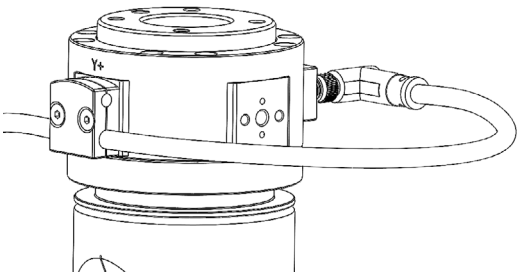

Figure 5

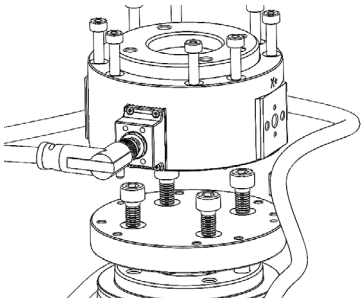

Figure 6

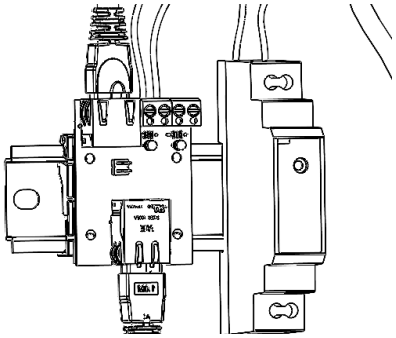

Figure 7

Electrical Interface

F/T Sensor to TX2-90

The sensor is wired using the customized cable provided in the kit (ACC-M12MRD-4Q-M8-ANGLE [3]). The cable connects to the robot's forearm connection via the M12 connector (J1218).

It is recommended to secure the cable with ties to minimize parasitic measurements from the sensor cable and other mounted tool accessories.

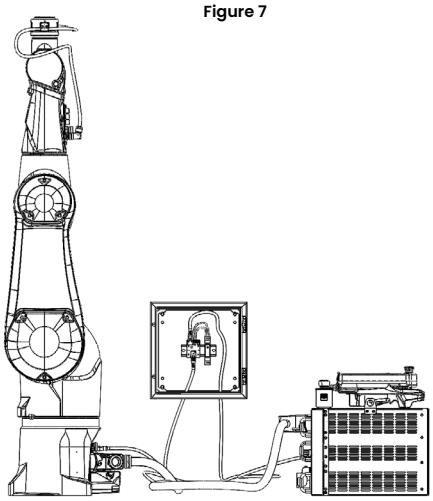

Figure 8

TX2-90 to Control Box

The kit also includes the necessary hardware to connect the robot to the PoE. This is done using the cable (PRT-RJ45-M12FSD-4Q-5M [4]). The cable connects via the M12 port at the base of the robot (J1217), as shown in **[Figure 10]**, and the other end connects via RJ45 to the PoE, which is also provided in the kit (ACC-POE-AB [5]). **[Figure 11]**

The PoE (ACC-POE-AB [5]) can be installed on a DIN Rail (ACC-DIN-RAIL [8]) along with a 9-48V power supply (PSU-DIN-12V-15W [7]). The DIN Rail (ACC-DIN-RAIL [8]) and 12V power supply (PSU-DIN-12V-15W [7]) can be shipped optionally with the kit. The sensor is powered in PoE Mode A. Therefore, the power supply needs to be connected to the VCC1 connector of the PoE board, as shown in the image in **[Figure 11]**.

Finally, the PoE will be connected to the EtherCAT master of the control box using an RJ45-to-RJ45 cable (ACC-RJ45-RJ45 [6]). This cable is also optionally shipped with the kit. **[Figure 12]**

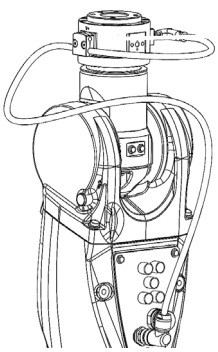

Figure 9

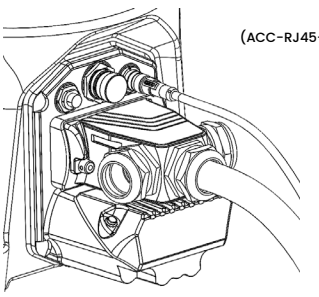

Figure 10

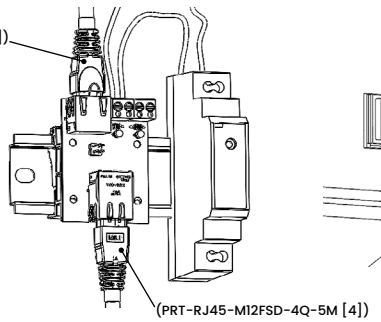

Figure 11

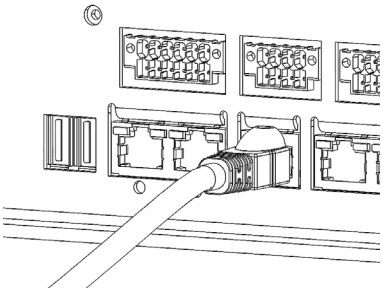

Figure 12

Software Interface

Stäubli Robotics Studio (SRS)

Bota Systems sensors offer seemingless integration to Staubli robots thanks to the native EtherCAT support. A few steps are only required to setup the robot. Import the 3d files of the kit, create a new tool and connect it to the robot. A set of example programs are provided together with all necessary files to setup the robot and perform force controllable applications. To perform force control the **Alter runtime license** is required.

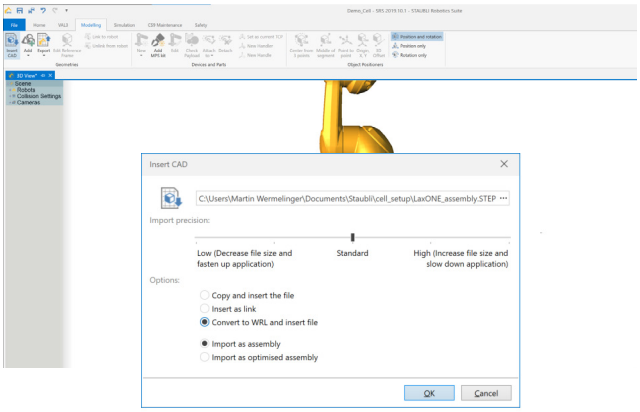

Figure 13

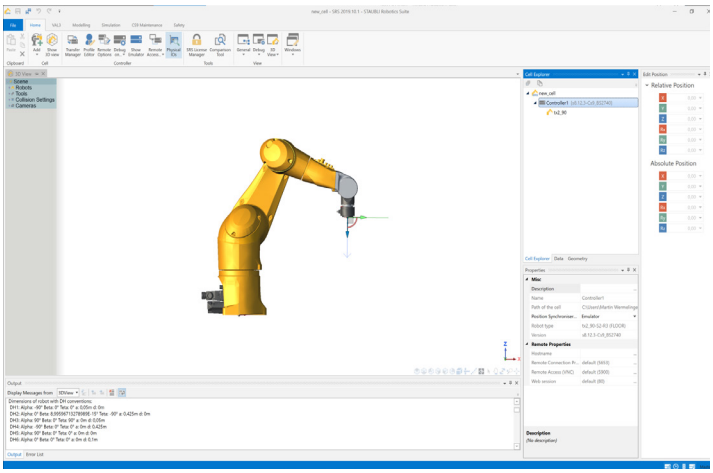

Figure 14

Stäubli Robotics Studio (SRS)

Force control enables the robot's end effector to track a position and a set force and torque, adapting dynamically the position to achieve the desired force and torque. Can be used for a variety of applications: Polishing, grinding, assembly, phase matching, edge or face detection, contour following and more.

Gravity compensation a set of helping programs and examples are provided in ordered to compensate the tool load from the sensors measurements.

Polish surface an example showcasing how to use force control to perform polishing of a surface without precise knowledge of its shape and position.

Example application a basic example showcasing how to use the sensor measurements inside a robot program.