

DESCRIPTION OF OPERATION

The Stryker Consolidated Operating Room Equipment (CORE) System is intended for use in the cutting, drilling, reaming, decorticating, and smoothing of teeth, bone, bone cement, and other bone-related tissue in a variety of surgical procedures, including but not limited to Neuro, ENT, Dental and Endoscopic. It is also usable in the placement or cutting of screws, metal, wires, pins, and other fixation devices.

RFID Description

The CORE Powered Instrument Driver console consists of several circuit boards with a distributed microprocessor architecture. The central processor is the Intel PXA255 which resides on the Display Module and is in communication with all the other microprocessors in the system. Each of the three handpiece ports has a dedicated Atmel ATmega8 microprocessor for detecting the presence of a handpiece. A fourth ATmega8 microprocessor (aka RFID controller) is used to provide a communications interface between the Display Module and the RF transceiver IC. The RFID controller repeatedly scans the irrigation pump cassette and handpieces which support RFID. The Display Module processor polls the RFID controller to see if an RF tag is present. The Display Module processor commands the RFID controller to read the contents of the EEPROM on the tag and relay that data back to the Display Module processor. The Display Module processor then sets the console settings relative to the data in the tag. There are two RF transceiver ICs per RFID controller and two RF interfaces per RF transceiver. The four transceivers are controlled in a Time-Division-Multiplexed manner such that only one is transmitting at a time.

The RF transceiver IC is intended to drive a 50ohm antenna, which is routed off the Main board to the handpiece connectors through a relay. When no handpiece is connected, or a handpiece that does not support cutter recognition is connected, the relays are opened. The cable of the handpiece has a 50ohm coaxial conductor, which then terminates to a flex circuit in the handpiece. This flex circuit ties into the antenna in the handpiece. The RF tags are external to the handpiece and can be contained in cutters or attachments. The antenna for the irrigation pump is assembled with the Main board and is mounted to the side of the irrigation pump housing inside the console.