

# DentoMax - Micromotor Control System for Unit Integration

DentoMax is intelligent micromotor control board intended to be built in dental units expanding their functionality. This all-in-one high performance system guarantees efficiency and best results in dental treatment.

Brushless electric motors with wide range of rotation speed navigated by microprocessor control unit are excellent base for fast and accurate preparation. Motor high power and torque make them perfect for surgery and implantology. Integrated last generation apex locator and intelligent torque control are designed to ensure precise and time saving endodontic operation as well as improved comfort and patient safety. DentoMax is easy to operate in three general modes simply by attaching corresponding handpiece.

Instrument rotation parameters are displayed on LCD and changed by keyboard. Specially designed user-friendly interface eliminates sophisticated menus and all functions can be triggered with one button push only.



## Preparation

Using electrical micromotors controlled by DentoMax gives you high power and quick control over speed setting for variety of handpiece gear ratios. Instrument rotation speed is set by dentist then displayed on LCD and DentoMax calculates the micromotor corresponding speed according to handpiece gear ratio (1:1, 1:5, 4:1 etc.).

Rotation speed is proportional to pressure applied on foot control and ensures smooth speed regulation from 20% to 100% of selected value.

The power driver supports one or two micromotors with light so random combination of DC or AC micromotors can be used, preferably with internal spray and light.

## Surgery / Implantology

DentoMax derives high output power up to 200W with surgical brushless micromotors attached. Using surgical handpieces (gear ratio 20:1, 32:1 etc.) ensures high torque up to 70Ncm.

Rotation speed is precisely controlled by microprocessor. While driving the micromotors DentoMax controls speed and torque appropriately to handpiece gear ratio selected. Up to 20 user programs can be stored in advance.

Peristaltic pump (for surgical sterile coolant) integrated within the dental unit can be controlled at 5 levels deriving up to 110ml/min coolant flow.



## Endodontics

This is the most sophisticated mode for DentoMax giving you best prerequisites for excellent endodontic treatment results. Endodontic handpiece with apex locator connector should be attached. Using brushless micromotor is highly advisable.

### Integrated Endodontic Micromotor with Apex Locator

Micromotor with its optimal speed range and high precision torque control system combined with the last generation apex locator are perfectly adapted for extremely accurate and time saving root canal treatment.

### Apex Distance Acquisition with DSP

Integrated state-of-the-art DSP (Digital Signal Processing) apex locator ensures exact measurement results, irrespective of any fluids or blood in root canal. High performance MICROCHIP processor, graphic visualization of file tip position on backlight LCD display and melodious sounds facilitate monitoring of file tip position during measurement with handfiles or treatment with rotary files. Apex locator scale corresponds exactly to the tactile sensation of file movement.

## Time Saving Endodontic Treatment

Internal library, containing manufacturer's suggested usage speed and torque values for most recent endodontic file systems (Twisted Files, ProTaper, etc.) eliminates sophisticated torque cards usage and safety compromises combining multiple files in one program. Own user defined file system is also available.

## Precise Rotation Parameters Control

DentoMax offers precise torque limit setup up to 7Ncm in step of 0.2Ncm and speed up to 1000rpm in step of 50rpm so optimal performance of every single file of the latest generation endodontic systems is achieved. Taper, size and color information also appear on display.

## Patient Safety and Precision

Automatic torque calibration and control system give a constantly controlled and precise file rotation regardless of mechanical or environmental conditions. 5 patient safety functions are available:

- **Auto Reverse / Auto Stop**  
File rotation stops or automatically reverses if set torque limit is exceeded.
- **Auto Apical Reverse**  
When file reaches user specified apex distance rotation stops and reverses automatically.
- **Auto Apical Slow Down**  
Rotation speed is automatically reduced when approaching the apical foramen for safer treatment.
- **Auto Rotate**  
File starts rotating automatically when inserted into root canal and stops automatically upon withdrawal.
- **3 Level Torque Control**  
Sound signal is played if 60% of torque limit is reached. Rotation speed is automatically reduced if 80% of torque limit is exceeded. Rotation stops or reverses direction (according to set mode) if 100% of torque limit is exceeded.

## Diagnostic and Therapy Functions

Additional diagnostic and therapy functions are available simply by connecting the proper cable to the control unit:

- Pulp Vitality Scanner
- Ionophoresis Physical Therapy
- Corrosion Potential Measurement

## Mounting and Connection

Each motor rotation is activated by air pressure sensor connected to cooling air pipe. The system consists of two modules – Power driver and Control unit.

Control unit consists of LCD and keyboard. For patient safety and apex location accuracy control unit is electrically isolated from power driver which is connected to the unit power supply.

Power driver can work in stand-alone (independent) mode if control unit is disconnected. Optional speed control can be done simply by using a potentiometer or maximum speed can be set to a predefined value. Torque control and other functions are not available.

Control unit is fixed to dental unit by metal stand so that LCD is visible by the dentist and keyboard is convenient to use. Different types of metal stands are available according to dental unit construction all of them made by stainless steel with powder coating. Connection between control unit and power driver is 6-core flat cable up to 2m long.

