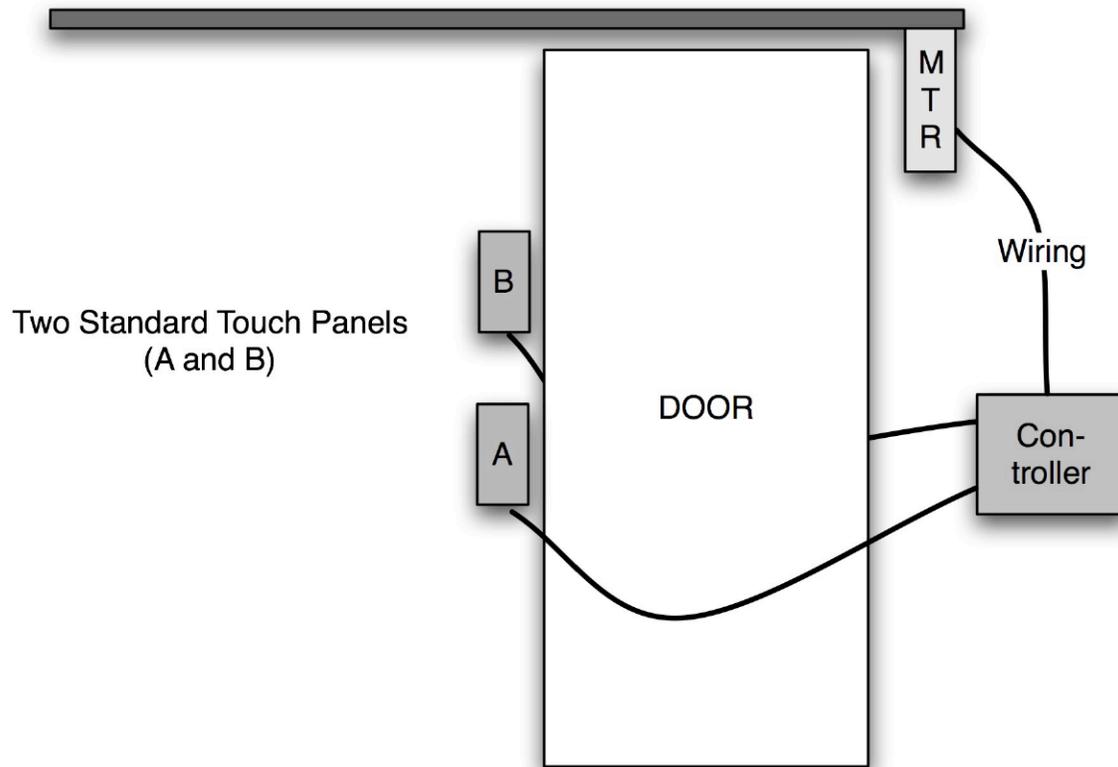


This document provides an overview of the Dado Door Motorized Track System.

We provide off-the-shelf and custom solutions for door motorization. We also offer a variety of options for doors, including glass(solid and laminated), stainless steel, exotic wood veneers, and other custom materials. We can provide DIY KITS so that the client can attach their own door. Our track systems are scalable to fit almost any size door, the maximum track length is 16' and are easily cut to any size. We provide the complete system to motorize a door or other moving partition. The system includes a motorized track, system controller, and touch panels in several options. See the following pages for greater detail and system specifications.

STANDARD DOOR SET UP



This drawing shows a Standard Dado Door setup.

A standard setup includes:

1. Door (optional)
2. Track and motor assembly
3. Master Controller box
4. Two Standard Touch Panels

The Standard setup is a complete system ready to install, you need only to provide a 110/220VAC power source to the System Controller and a header to suspend the track system from.

Unless otherwise arranged, the customer is responsible for completing all door jamb and track enclosure details. Typically the client has their own requirements and tastes for framing and finishing details.

The Dado Door System

Our system is designed to produce an elegant motion, using the quietest methods possible. Our system can be interfaced to any modern home automation system, and any number of our systems can be networked together for monitoring and control.

Dado System Specifications:

Track:

A standard motorized track system can run up to 16'. There is a requirement of excess track of around 10" due to motor mount hardware and bearing blocks. The track will carry up to 300lbs on several rollers. Custom track lengths can be configured, as well as more heavy duty rollers for heavier applications. Our standard track system is designed to mount from a supporting header, the track mounts via several threaded rods that use rubber grommets for vibration dampening. We offer medium and heavy duty motors for varying weight doors.

Motion:

Our motors are brushless DC motors with gearboxes. 'Brushless' implies there are no brushes to wear out over time, as well as higher efficiency. The motors and gearboxes are designed for industrial automation and are rated for continuous heavy duty use, these ratings far exceed any demand for a residential or commercial door application. There is no maintenance requirement on the motors, and in most cases we do not require an access panel to the motors or track hardware. We use industrial high torque belts that have had no instances of stretching over years of continuous use. Should the belt require adjustment however, the access to the belt tensioner bolt is located in the slot above the door for easy access.

System Controller:

The system controller runs off a standard 110/220VAC 3 prong plug. The electrical current consumption is very low. The system controller has fuses on both the AC power transformer and on the motor driver board for protection in the event of an overload. All electronic components on the circuit boards are fire rated individually by the various manufacturers. The complete system however is not currently UL listed, but will be tested by year end 2010. Dimensions of the system controller are 11" x 10" x 3".

Electronics:

The system controller is a 110/220VAC powered master controller that contains the main motherboard, motor driver board, and power supply board. Connections to the controller are as follows:

8 port RJ45 jack(uses CAT5E cable):

Port 1:	Touch Panel A
Port 2:	Touch Panel B
Port 3:	Optional Keypad A (fingerprint/keycode panel)
Port 4:	Motor Logic Interface, Home switch interface
Port 5:	Miscellaneous serial interface for external communication
Port 6:	Auxiliary inputs (3 connections for remote external triggering)
Port 7:	RS485 interface for remote device serial communication
Port 8:	RS485 interface (duplicate for daisy chain)

Motor 3 Phase Power Leads:

3 conductor heavy duty connection for 3 phase motor power

AC Power:

110VAC cord (Standard 3 conductor/3prong power cord)

System Description and Overview of options:

Audio:

Stereo line outputs are available for the audio option for connecting to an external audio amplifier. Stereo speaker outputs are available for connecting directly to speakers. Audio is required for the fingerprint/keypad option, human voice audio recordings are used for feedback during fingerprint programming. Sound FX can be used to produce any desired sound upon entry for purposes of alerting someone in a room of another persons entry. In some cases, the door motion may be inaudible, meaning the someone inside a room may not be aware of an entry. Sound FX may also be used as an alarm for any number of reasons, including forced entry.

Auxiliary Inputs:

The standard configuration allows three external inputs of low voltage sources(0 - 5VDC), or external relay contact closure. Motion sensors may be used for automatic operation or safety retraction. An external third party fire alarm may be used to trigger the door to open or close as desired for egress requirements. Additional methods of signaling the door to open or close may be configured.

Touch Panels:

We provide two types of wall mounted touch panels. The standard touch panel has a large area for move full open or move full closed commands. There are smaller touch areas for positioning the door anywhere between the extremes. There is a lock area with corresponding LED to display if the panel is locked or unlocked. The touch panels are machined by hand using low iron glass, they are touch sensitive and actually no physical contact is required due to proximity technology, just put a finger near the area and the panel responds.

We also offer a fingerprint/keypad touch panel version. The keypad can be used for password entry. The fingerprint sensor can store up to 1000 users in the database. For larger multi door installations, fingerprint data can be managed and distributed between multiple systems, so that a master control computer terminal can manage access as needed.

Software Features:

The electronics and software are our own proprietary design. Therefore, the hardware and software can be custom configured to any requirement. The standard options are as follows:

Locking Features: Any touch panel can be configured as a locking master, or both panels can be locked independently in a dual locking mode. Secret unlock access can be provided.

Auto Home: Upon power up, the system automatically moves towards a home switch, which is the most open position. After Homing, the system operates normally.

Parameters and Settings: There are basic user settings and advanced settings for motion control to achieve the best possible motion for any potential door weight, size etc. Each setting is stored in permanent memory and cannot be lost due to power failure. Upon a power outage, when the power comes back on, the system goes to Home position, and all parameters are as they were prior to the power outage.

Auto Close: Automatic close mode can be enabled, whereas after a user defined period(0 - 60 seconds), the door will close after it is opened.

Auto Lock: Automatic Locking after Auto Close is available.

Auto Retract on obstruction or door jam: If the door is closing and encounters an obstruction, it will retract automatically. There is a parameter to set the threshold of pressure that must be exceeded before retracting.

Open and Close Speeds: The user has flexibility in setting speeds for both directions.

Acceleration/Deceleration: The user can program the rates at which the door accelerates and decelerates. These features in conjunction with the open and close speeds can dramatically affect the aesthetic of the motion.

Custom Software: We can provide unique software features to suit any requirement.

Custom Hardware: We can provide hardware for numerous motion applications, our system is not limited to doors alone, but can move any object with precision control down to 1/600" accuracy.

Motion Detection: We can provide external motion control or safety options using motion sensors to open or retract the door as desired.

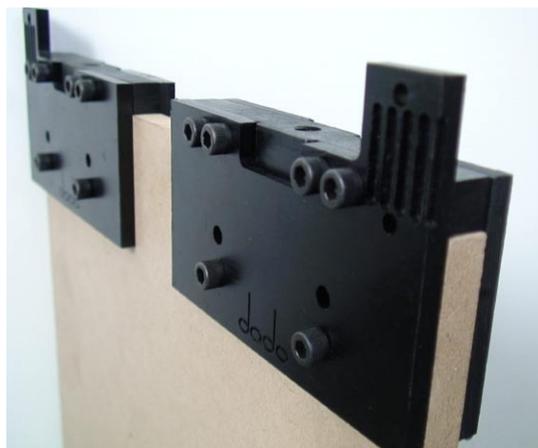
Fire Alarm interface: Our system has three external inputs that can be configured to receive input from any low voltage source for remote control. We can provide an auxiliary board with more inputs if required.

Motor Tuning: There are advanced parameters for fine tuning the motion to produce a desired 'motion profile for doors of varying weights. A motion profile is the curve produced by the factors of acceleration, travel speed, and deceleration values that create a smooth flowing aesthetic.

Sound FX: Sound FX are required with the fingerprint option, as voice commands are required for interacting with the system for programming users into the system and user feedback. Opening and closing Sound FX are available should the user require audio feedback for entry.

Thermostat/Temperature Alarm: The system has a built in digital thermostat that can be used for a number of purposes. For example, the user can program a high temperature threshold at which the door automatically opens if the temperature threshold is exceeded. This scenario can be a redundant fire alert feature, such that if the temperature becomes excessive, the door can open automatically for egress. Conversely, for an energy saving use, if the temperature drops below a preset level, the door can close to reduce energy waste for air conditioning.

The photo depicts the standard clamps for glass doors 1/2" thick.

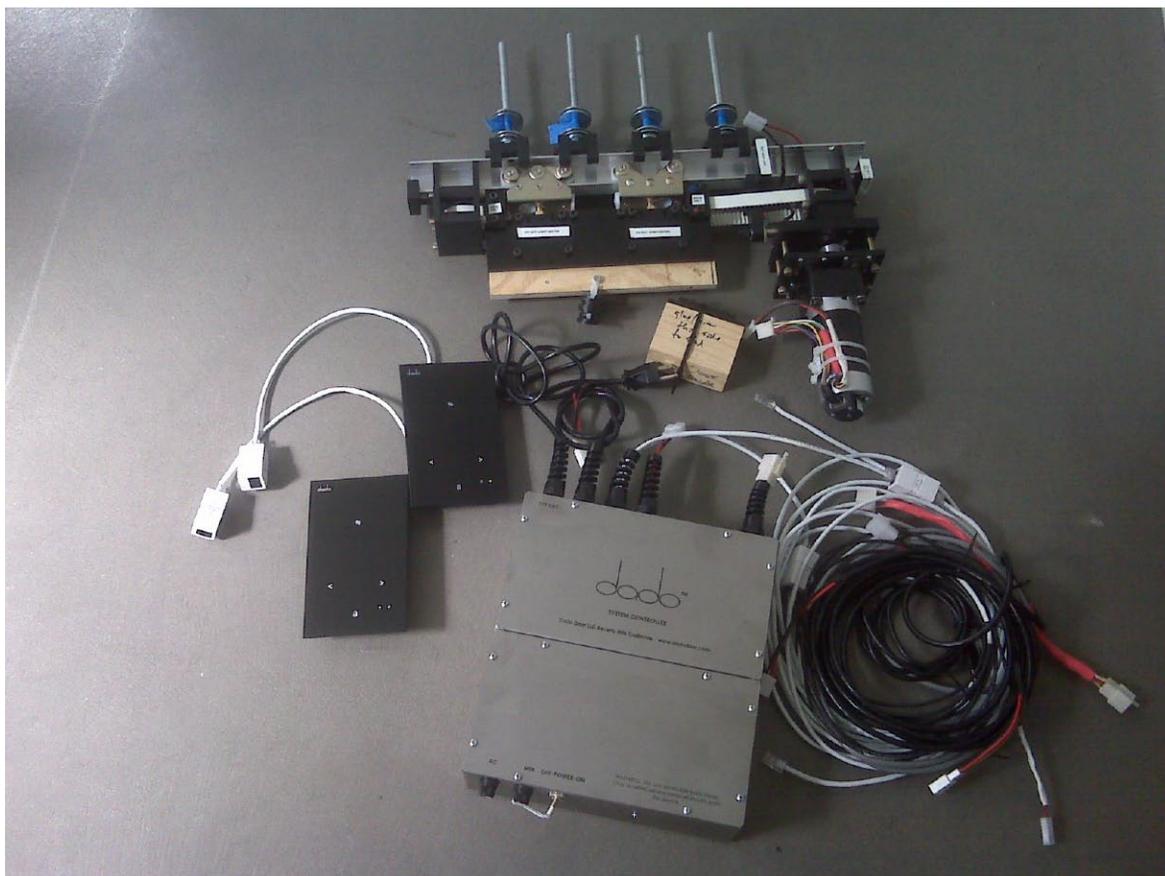


Remote Serial Communication: The controller has several methods of external digital control. There are built-in RJ45 jacks that allow RS485 serial interface for access from external digital devices. Most advanced home automation systems offer configurable serial communication, and we offer a simple protocol that a third party system programmer can write their own corresponding code blocks to operate the door system. In addition to access and control by home automation systems, we can provide custom software solutions for managing any number of door systems over Apple or PC with a custom user interface to suit the users needs.

In addition to the RS485 serial communication ports, the controller can communicate via serial i/o lines(Tx/Rx) using configurable baud, 8 bit parity. There is also access to I2C communication lines for external devices that use such protocol. Access to serial and I2C ports require custom programming by Dado.

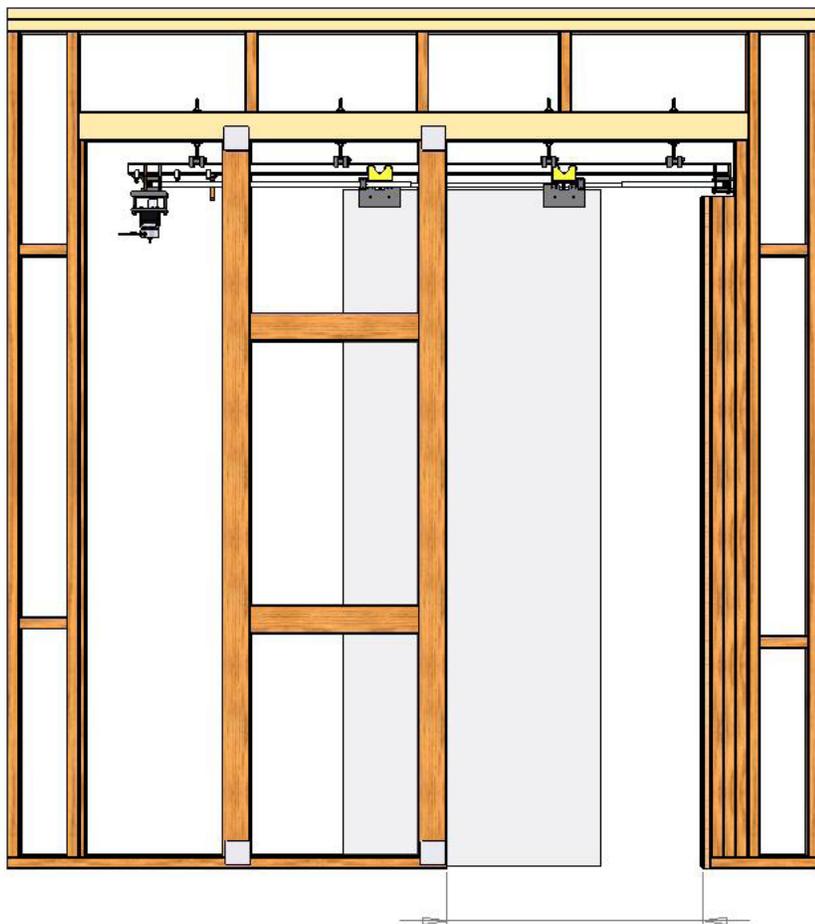
Hardware:

The photo below depicts a miniature, yet fully assembled track system, a master controller, and touch panels. A DIY KIT is shipped in this exact configuration so that the installer can see how to set the track up. All the installer has to do is transfer the hardware over to the longer track that is cut to suit their needs.



These drawings depict a common framing example. The basic elements of the framing are a support header (some treated material such as 4" x 6" Douglas Fir), and framing support for the wall surfaces.

4" track excess is required for a bearing/pulley block on one end of the track, and 6" of excess is required on for the motor mounting hardware on the other end. 5.5" space between the top of the door and the bottom of the supporting header is typical.



31.250
UNFINISHED OPENING