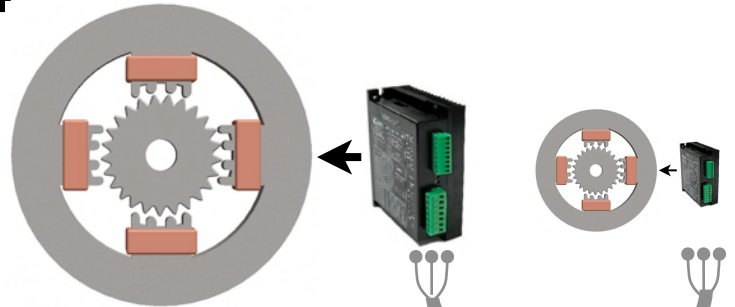


drive.web[®] Dual Stepper Drive Controller

dwOption-37, -38 Stepper Installation & Operation Manual

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drive.web Stepper Controller is an industrial device designed for permanent installation by qualified professionals. If it is used in a manner not specified herein the protection provided may be impaired.

Warning! It is essential that you read and understand this manual and the entire contents of the **drive.web** device manual and the **savvy**[®] software “Help” menu before proceeding with installation and product configuration. For more information and to download product manuals and software, go to www.driveweb.com.



Warning! Your use of **savvy** software and **drive.web** devices may cause motors and machinery to power up with high voltages or start or operate in an unexpected, dangerous or lethal way. It is essential that you are completely familiar with **savvy** and all of the equipment and the system design before attempting to program or edit a program or connect to any live device.



Warning! It is also essential that a risk assessment is conducted to identify hazards. Risks must be reduced to tolerable levels. You are entirely responsible for ensuring the equipment operates safely and meets all appropriate codes for installation and use.



Warning! You are entirely responsible for the configuration or use of any **drive.web** product. By configuring or using these products you agree to indemnify and hold harmless Bardac[®] Corporation, its employees, directors, officers, distributors and resellers against the consequences of your configuration or use of the products.



Warning! Information in this manual is subject to change without notice. You are responsible for verifying the proper operation of your system.



Warning! Avoid permanent damage to your **drive.web** Stepper Controller, never exceed any **min** or **max** values. Do not connect any terminal to mains circuits. See page 2 for I/O ratings.

drive.web Stepper Controller Description

Two step pulse outputs available, **T3** and **T5**.

Step pulse output frequency range is 15Hz to 500KHz.

Two 5V direction logic outputs available, **T4** and **T6**.

Outputs are 5V square wave and source and / or sink up to 20mA.

dwOption-37 provides high-speed event logic inputs at **T7** and **T8**.

dwOption-38 provides remote encoder module **i2i** port at **T7** and **T8**.
Requires **dwOption-40** or **-42**, Remote Encoder Module.

Stepper function block provides **Steps per Rev** and **Base Speed** scaling as well as a **Position Output** with **Base Revs** scaling.



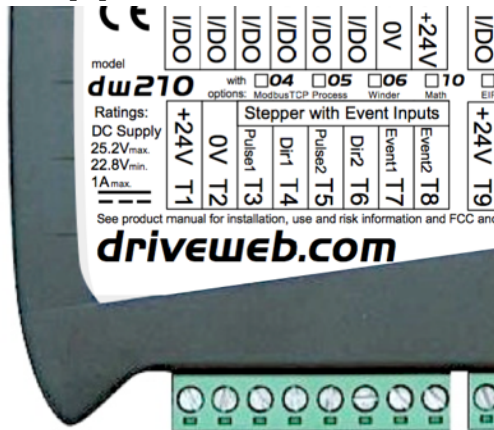
drive.web Stepper Controller Installation

This option is factory-installed in your **drive.web** device. Please refer to the **Installation and Operation Manual** supplied with your **smarty** for environmental and terminal wiring and tightening torque information.

Wiring Notes All wiring outside of the metal enclosure should be shielded cable. Ground the shield at only one end. Ground the shield with a 360° clamp where the shield enters your “quiet” metal enclosure. Separate all wiring from RF noise sources and AC power cabling.

I/O Ratings: Use shielded cable for runs over 30 meters. Do not connect to any mains circuit.

drive.web Stepper Controller Connections

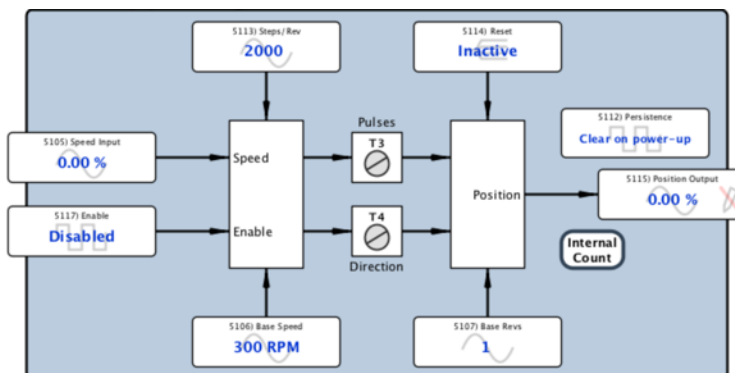


Terminal	T3	T4	T5	T6	dwOption-37		dwOption-38	
Function	Pulse1 Out	Direction1 Out	Pulse2 Out	Direction2 Out	Event1 Input	Event2 Input	i2i	i2i
Max. Voltage	5V	5V	5V	5V	24V	24V	5V	5V






drive.web Stepper Controller - System Integration

Use **savvy** to complete your installation. See the **Installation and Operation Manual** supplied with your **smarty** for information on getting started.


Stepper 1, 2 Function Blocks





Stepper 1, 2 Function Blocks continued

-  Set *Steps/Rev* according to the stepper drive setting or motor steps.
 -  Set *Base Speed* for the desired speed when *Speed Input* = 100%.
 -  Set *Base Revs* according to the number of motor revolutions at which *Position Output* = 100%.
 -  *Position Output* is reset to zero and clamped there while *Reset* is active.
 -  For **dwOption-37** set *Reset* to *Auto-Reset* to reset *Position Output* only on the rising edge of the associated event logic input terminal, *T7* or *T8*.
- Event Logic Input, *T7* and *T8*, (24V Max.) Input Specification -



Positive-Going Threshold	2.9V Max.
Negative-Going Threshold	0.7V Min.
Typical Hysteresis	1V
Event Repetition	100Hz Max.
Max. Response Time	< 1 μ s

-  Set *Persistence* according to whether *Position Output* should reset on power-up or whether the last position prior to powering-down should be retained.



Stepper Status Monitor Function Block

-  Provides the actual pulse output frequency in Hertz and kilohertz.
-  For **dwOption-37**, provides the current logic state of the event logic input terminals, *T7* and *T8*.

Using the Remote Encoder Module

-  Requires **dwOption-38** and **dwOption-40** or **-42**.
-  Please refer to the *Installation and Operation Manuals* for the **smarty** and **dwOption-40,-42**, the remote encoder module for more information.

Application Example - Open-Loop Stepper Positioning

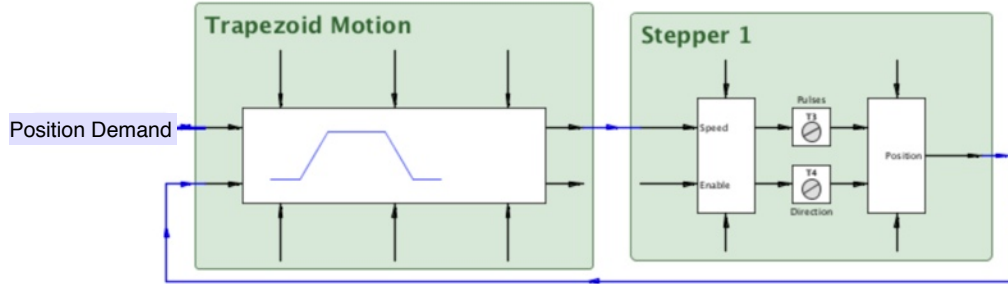
-  This machine and the following example provide the fastest move to the target according to acceleration rate, maximum speed and deceleration rate set in *Trapezoid Motion*. (Requires **dwOption-36**, Motion Control software library.) Set these to suit the capabilities and requirements of the application. Factors may include available motor torque, gain requirements, load momentum and safety considerations.
-  Instantiate function blocks, *Stepper 1* and *Trapezoid Motion*.

Connect from *Speed Output* in the *Trapezoid Motion* block to *Speed Input* in the *Stepper1* block.

Connect from *Position Output* in the *Stepper 1* block to *Position Feedback* in the *Trapezoid Motion* block.

Application Example - Open-Loop Stepper Positioning continued

Connect the position demand at *Position Setpoint* in the *Trapezoid Motion* block.



Application Example - Closed-Loop Stepper Positioning

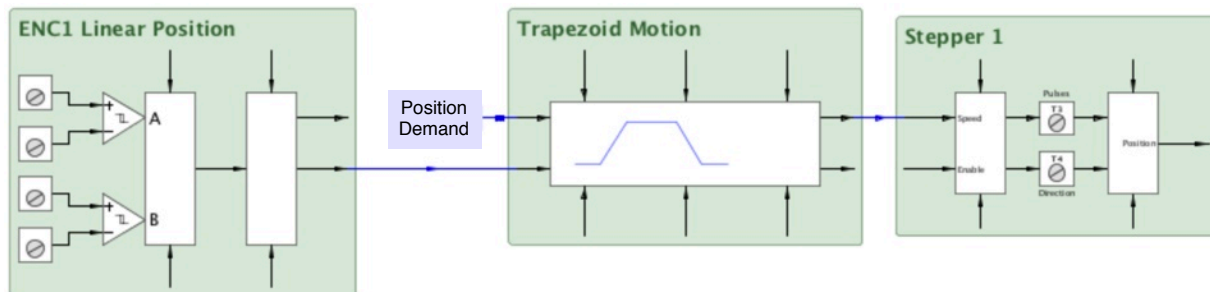
Requires **dwOption-11**, Encoder Control and **dwOption-36**, Motion Control software libraries, **dwOption-38**, Stepper with *i2i* and **dwOption-40** or **-42**, Remote Encoder Module.

Instantiate function blocks, *Stepper 1*, *Enc 1 Linear Position* and *Trapezoid Motion*.

Connect from *Output* in the *Enc 1 Linear Position* block to *Position Feedback* in the *Trapezoid Motion* block.

Connect from *Speed Output* in the *Trapezoid Motion* block to *Speed Input* in the *Stepper 1* block.

Connect the position demand at *Position Setpoint* in the *Trapezoid Motion* block.



drive.web Resources

Expert help is always available. Call, email techsupport@driveweb.com or browse the help menu in *savvy*.

Explore the full line of **drive.web** products and resources at driveweb.com.

Free **drive.web** online training seminars are held every week. They are interactive with the presenter and take about one hour. Learn essential elements:

Design control schemes, configure networks, create drive systems with almost any drive, generate signal flow documentation, configure drives, interface to external products such as operator stations, PLCs, etc. and work with your drives across the Internet.

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