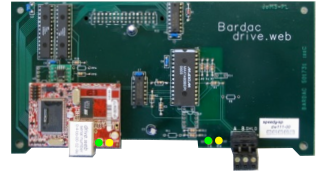


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ModbusTCP, drive.web highlights, training 8	



Warning! It is essential that you read and understand this entire manual, the PL Series Product Manual, HG501441, and the entire contents of the **savvy** software “Help” menu before proceeding with your installation and product configuration. For more information and copies of product manuals and software, go to www.driveweb.com.



Warning! Your use of **savvy** software, **drive.web** devices and PL Series drives 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 you are working with before attempting to program or edit a program or connect to any live device.



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.

Product Identification **speedy sp** Model dw111

Intelligence, system connectivity for PL-Series Digital DC drives:

Bardac Corporation, PL series DC drives

Eurotherm, ERCPL series DC drives

Sprint Electric Ltd., PL series DC drives.

drive.web Distributed Process Control over **Ethernet**

savvyPanel Operator Touch Station, option **26**. See page 7.

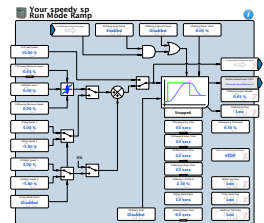
ModbusTCP/IP over Ethernet with option **04**. See page 8.

ModbusRTU for Serial Networks. Option **02, 12** Server, Client. Pg.2.

Easy upgrades with **savvy** software. See page 6.

System libraries; Basic and Optional; Process, Winder and Math.

Function Blocks; Extensive PL-Series DC Drive parameter control and monitoring, Math, logic, PID, comparator, filter, latch, timer, counter, ramps, winder diameter, taper tension, torque compensator, more.



speedy-sp Options

Add software Options **04, 05, 06, 10 and 26** with **savvy**. See *Upgrading*, page 6.
See **savvy** User Manual, Appendix A for current list of available function blocks.

02* ModbusRTU slave. 250V isolated EIA485(RS485), up to 19.2 kbps

04 ModbusTCP/IP. Ethernet, 10baseT enabled Modbus slave/server. See page 6.

05 Process Control. Function Block Library 1 - arithmetic, logic, PID, switches, comparators, user log, profiler, latches, filters, counters, timers, more.

06 Winder Control Function Block Library 2 - Diameter Calculator, Taper Tension, Torque Compensator.

10 Math Function Block Library 3 - trig, polynomials, log, exponent, more.

12* ModbusRTU Master. 250V isolated EIA485/RS485 serial, up to 115kbps

26 savvyPanel Operator Touch Station. See page x

***ModbusRTU Options 02 and 12** are mutually exclusive. It is essential that you read and understand the entire **drive.web** Modbus Installation and Operation Manual, HG502421, included with these options before installing them.

speedy sp Winder Specials

Include options **05** and **06**, generic engineered solution and a wiring diagram.

dw111-1101 speedy sp winder 1 Open Loop Constant Tension Center Winder.

dw111-1102 speedy sp winder 2 Closed Loop Dancer Control Center Winder.

dw111-1103 speedy sp winder 3 Closed Loop Loadcell Control Center Winder.

speedy sp Installation

Dimensions and Weight: 7.8”w, 4.0”h, 1.5”d (198, 101, 38mm) 0.5 lb (0.2 Kg)

Power Requirements: 5VDC, 50mA supplied from the PL-series drive.

Storage and Operation Environment: Temperature range; 0 to 50°C.
Humidity less than 95% non-condensing.

Ethernet Port “RJ45” 8P8C, 10BaseT. LEDs; green, link and yellow, activity.

Warning!

Components on your *speedy sp* and PL-series printed circuit boards are ESD Static Sensitive!

Do NOT proceed with installation, nor remove your *speedy sp* from its ESD-safe packaging without grounding yourself and your work area with static control equipment.

speedy sp Installation continued...

Warning!



Risk of electric shock resulting in injury or death!



Your PL-series drive is powered from more than one source of high voltage electricity. Remove and isolate all sources of electric power before proceeding.



Only qualified personnel should proceed with installation!

- 1.Ensure all sources of electricity are removed and safely isolated.
- 2.Loosen the thumb screws and remove the upper and lower terminal covers.
- 3.Locate and remove the four Philips head screws that hold the drive cover and display assembly in place. You will need a long #2 Philips head screwdriver to remove these.
- 4.Gently lift the cover and display assembly and rotate it upwards and away from the drive. **Support the assembly** above the drive so that you **do not strain the two ribbon cables.**
- 5.Remove the two nylon screws that hold the PL-series control circuit board in place at its' bottom corners. You will be replacing these two nylon screws with the longer nylon screws and spacers provided with your **speedy sp**.
- 6.Ensure that you are grounded with ESD control equipment. Remove your **speedy sp** from its' static-safe bag and carefully locate it's parallel interface plug over the corresponding socket on the PL-series control board. Snap-clips should align with the holes in the top corners of your **speedy sp**.
- 7.Gently push down, inserting the plug into the socket and allowing the clips to engage the top edge of the **speedy sp** circuit board. Use two hands and apply pressure above the socket and at the snap clips to **avoid flexing the circuit board.**
- 8.Now locate the provided nylon spacers between the PL-series control board and the **speedy sp** board at the bottom corners. Insert and tighten the two provided longer nylon screws.
- 9.Replace the PL series cover and display assembly and reinstall the four mounting screws.
- 10.Reconnect the power sources to your PL-series drive.
- 11.Replace the PL terminal covers and tighten the thumb screws.
- 12.The **speedy sp** installation procedure is complete.



speedy sp Ethernet Networking & Programming

Before proceeding, it is important to have a basic understanding of Ethernet TCP/IP networks. Assigning an invalid or duplicate IP address will cause serious network malfunctions! **speedy sp** are all shipped with the **same IP address, 10.189.189.189**. Consult your company's IT department for an appropriate, unique IP address.



Find useful networking information, under the **Help** menu, click on **User Manual**. Scroll down to the **Basic Network Administration**.

Set up Physical Ethernet Network - You Will Need:

A standard Category 5e cable with 8P8C/RJ-45 connectors on both ends for each **drive.web** device and your computer.

For systems with more than one **drive.web** device, an Ethernet switch with ports for all **drive.web** devices and your computer.

Set up Your Computer - Get **savvy**

With free **drive.web savvy** software, program and monitor your **speedy sp**, trend data and create distributed control systems.

To download the latest version of **savvy** and to view the **savvy** user manual, go to **www.driveweb.com** and click on **Get savvy**.

Java Runtime Environment must be installed to run **savvy**. There is a link on the **Get savvy** page to download Java for free.

If you do not have internet access, install **savvy** and Java from the **Bardac Infodisk**. Browse to the **savvy** link, off-line installation. Contact us for the files or **Infodisk**.



Get started with **savvy**

We strongly recommend you attend our free on-line training seminars. To register, e-mail **training@driveweb.com** or **call**.

Before proceeding with your systems designs it is very important to familiarize yourself with **savvy**, the configuration software.

We strongly recommend you read the introductory guides under the **Help** menu; **Getting Started with savvy**, **Getting Started with savvy-SFD**, **savvy-SFD and the PL series drive**.

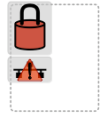
Use **Create Phantom** in the **Directory** menu to practice, explore all **drive.web** products and options and design and configure off-line. Design systems in Phantom devices and **Export Data** under the **Directory** menu for later use in live devices. **Import Data** into phantoms to work off-line.

Under the **Directory** menu, click **Discover All Local Devices**. If your **speedy sp** is powered and on the same local network as your computer, an icon should appear.

Discover **drive.web** devices anywhere on the internet unless they are protected by firewalls or other network security devices. Assign a public IP address or use a VPN. Under the **Directory** menu, click on **Discover Device...**

Get started with **savvy** continued...

If the icon at right appears with the red padlock and comms-fail indication, a network connection problem exists. Check connections, LEDs and that the **speedy sp** IP address is within your computer's subnet mask.



10.189.189.189

Warning! Changing a device IP address **WILL** disrupt its network connections! If a **speedy sp** is communicating with other devices or drives you must be prepared for system disruption and to remap connections in those devices when changing an IP address. In the **File** menu choose **Utility > Remap Export File** to remap a **dw-system** file with different IP address(es).

Under the **File** menu, click **Administrate > Set IP Addresses for System**. Locate the serial number on the product label of your **speedy sp**. Enter a unique IP address that is within your computer's subnet mask and click OK. A **speedy sp** icon should appear with IP address beneath.



192.168.1.71

Hover cursor over a device icon, function block, connection or parameter to see contextual information in the status bar at the window top margin and reveal the hover button.

Click a hover button or right-click an icon to access a contextual menu.

In the **speedy sp** contextual menu, choose **Change Name** to name your **speedy sp** for easy identification. Also, a powerful **Find Parameter...** function locates and jumps views to a parameter. Simply enter its number, name or partial name.

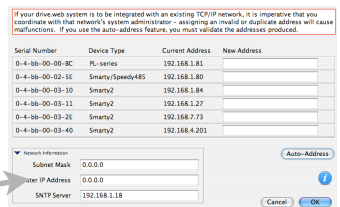


Laminator Stage 2

To Import or Export (load or save) configuration data to or from your **speedy sp**, use its contextual menu.

To Import or Export all configuration and connection data to or from all **drive.web** devices and phantoms in the directory use **Directory** menu.

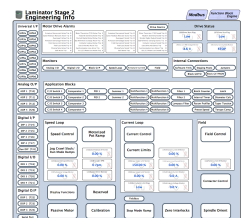
Advanced Users: At the bottom of the **Setup IP Addresses** window, click the arrow next to **Network Information** to set subnet mask and router IP addresses. See the **savvy** user manual. **Note!** If the **Network Information** box is expanded, this network information will be set in the device(s) whose IP address(es) changed.



savvy views are hierarchical with the Directory view at top. Use the navigation arrows in the status bar to view the next higher level or go backward and forward through a series of views. Note that menus change as you navigate.

savvy function may be limited if you do not have the required capability level or a device is locked with a password.

Click the **speedy sp** icon to view the **Engineering Info** screen (Standard **savvy**, no **SFD**). Click the **Function Block Engine** icon and if you have options **02**, **04** or **12**, the **Modbus** icon to view.



Get started with **savvy** continued...

👉 In the Function Block Engine view (Standard **savvy**, no **SFD**), click the **FBE** menu and select function blocks in the order to be processed. Processing order is from left to right, then top to bottom.

👉 Click on a function block to view its parameters and function detail.

👉 Effortlessly connect between parameters and to parameters in other **drive.web** devices over Ethernet.

👉 Under the **File** menu, choose **New Viewer...** and then **Open Device Directory**. Now you can click on a parameter, **drag** a connection and **drop** onto a destination parameter in the other viewer.

👉 Use parameter contextual menus for **Get Info**, **Add to Dock**, **Copy**, **Connect to...** start or end connections, **Re-name...**, and **Re-scale...**

👉 Click any blue connection to jump views to the other end.

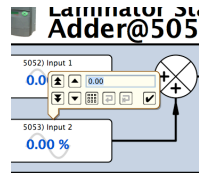
👉 Use contextual menu in **drive.web**-over-Ethernet and FBE-to-drive connections to **Change Sample Period...** and prioritize connections.

👉 Click on parameters to open the setter box. Adjust the value with convenient graphical buttons or keyboard entry.

👉 Most **drive.web** parameters use 16 bit words allowing raw decimal integer values **0 to 65535 or ±32767**. These raw values are formatted, limited and scaled depending on the parameter. Use **Get Info** or **Re-Scale** to verify or change.

👉 A blank rectangle connected to or from a parameter indicates a remote device is not discovered in **savvy**.

👉 Very complex function block configurations with numerous Ethernet connections may produce **Timebase Overrun** indications at the **System** function block. Performance **WILL** be affected. In the **System** block contextual menu adjust the **speedy sp's Timebase Setpoint**. Make a connection from the **Program Status** parameter to log these occurrences or provide warning signals.



Upgrading **savvy** and **speedy sp**

Upgrade **savvy** with **SFD** Signal Flow Diagram.

Upgrade **speedy sp** with software options.

Process credit cards or **Vouchers** on-line or **Coupons** off-line.

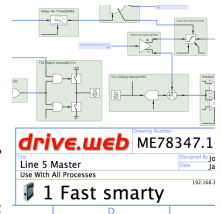
👉 To upgrade **savvy** go to the **Commerce** menu, select **Upgrade savvy**, check the desired option and click OK.

👉 To upgrade **speedy sp**, right-click on the **speedy sp** icon, choose **Upgrade Device...**, check the desired option and click OK.

👉 Your selected options will appear in the Shopping Cart. Select your method of payment.

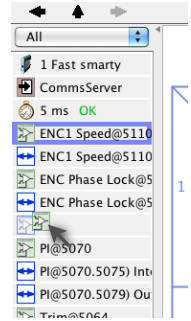
👉 To process **Vouchers**, choose **Pay>Online Via Vouchers** in the **Shopping Cart**. Enter each **Voucher** code on a separate line.

👉 To process **Coupons** click **Buy** and forward the code to your **drive.web** distributor. When you receive your coupons go to the **Commerce** menu and choose **Coupon Manager**. Enter individual codes in the top box and click the **Add** button. Click **Apply**.



savvy-SFD Signal Flow Diagram Upgrade

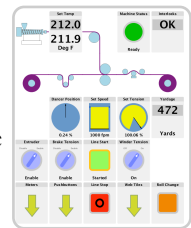
- With **savvy-SFD**, build systems graphically while creating live drawings that are stored in your **speedy sp**.
- Set borders with user attributes, drag and drop connections, zoom, pan, cross-reference and annotate multi-page drawings.
- Right-click in an empty area of the SFD to zoom, add a new function block, note or parameter for convenient viewing.
- A filterable list of function blocks and connections is at left of the Signal Flow Diagram showing **program execution order** from top down. This can greatly influence system performance and the function of logic engines. Change execution order by dragging function blocks up or down the list. In this picture, **ENC1 Speed** function block and its outgoing connection will be moved so that they are processed after **ENC Phase Lock**.



savvyPanel Operator Station

With **savvyPanel**, your computer, Apple® mobile digital device; iPad®, iPhone® and iPod Touch® are operator touch stations.

- All operator station data is stored in the **drive.web** devices.
- Editing & building **savvyPanel** systems requires **savvy SFD**.
- savvyPanel dwOption-26** required in **drive.web** device to enable the full suite of tiles. A limited set is available without the option.
- Find complete information on in the **savvy** User Manual.





Get savvyPanel Free from the Apple App StoreSM


- When your iPad or iPhone has WiFi internet access, you are connected to a real drive system in our plant in Maryland, USA.
- Drive the demo with **savvy** in your computer. **File>Demo Mode, Discover Internet Demo Devices**, then **File > Open savvyPanel**.

Three savvyPanel Page Types

Systems Page present with multiple **savvyPanel** systems discovered.

- A **savvyPanel** system may contain tiles from **many devices**.
- A **drive.web** device contributes to **only one savvyPanel** system.
- Touch the systems button,  or , in the window bar to access the systems page from home page. Lock button with home password.

Home Page is the first operator page in a **savvyPanel** System.

- Access home page from any operator page with the home button, . This may be locked with the home password.

Operator Pages show graphic, page-link and parameter tiles.

- Pages can be renamed. The name appears in the window title bar.

Three savvyPanel Tile Types

Parameter Tiles. Touch for the **savvyPanel** setter if it is not read-only and has no incoming **drive.web** connection.

- Meter** tiles; digital panel meter, dial or bar meter.
- Indicator** tiles. Variety of colors. Shows on/off, true/false state.
- Pushbutton** tiles; colored momentary and lighted Start/Stop.
- Multi-position Switch** tiles for enumerated parameters.

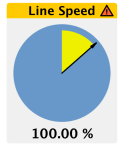
Graphic Tiles - create diagrams with a variety of process elements.

Page-Link Tiles - A graphic tile that is also a touch page-link.



savvyPanel Launch, Setup and Important Notes

- See the **savvy** User manual for detailed instructions.
 - Launch **savvyPanel** from a command line or batch file.
 - Limit operators to **savvyPanel**-only, specify start system & page.
 - Discover devices specifically by discovery file, automatically or filtered by group and/or **savvyPanel** name.
 - Operator's Note: If communication with a **drive.web** device is interrupted, affected tiles indicate a yellow bar at top with an exclamation warning. The displayed value is not updated.
- Important Design Note: An over-range enumeration is required if misreading an out-of-range value could cause a hazard.



speedy sp Option 04 ModbusTCP/IP Slave/Server



Warning! Use of **speedy sp** option **04** 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 the ModbusTCP/IP protocol and all of the equipment and the system design you are working with before attempting to use this option.



- Supports up to **three simultaneous masters**. Further connection attempts are refused until a connection is ended.
- Adheres to Modbus Conformance Class 0.
- Supports Modbus Function Codes 03 and 16.
- You cannot write or force parameters that are read-only or have incoming **drive.web** connections.
- ModbusTCP Slave Port** 502 is the standard specified in the protocol. May be changed in the unusual case that it is non-standard.
- Modbus Indirect** function blocks with sequentially numbered parameters. Enter parameter addresses for marshaled polling.
- Directly address any numbered parameter individually. You are NOT required to use **Indirect** parameters.

drive.web Product Line Overview

smarty 16 configurable analog and digital I/O. Optional dual serial ports, dual encoder module, winder, shaft-lock and position functions.

speedy Ultra-miniature **drive.web** controller with Ethernet, serial, USB.

Drive-dedicated **smarty** and **speedy**. Complete control for **ODE2**, **ODP**, **ODP2**, **ODV2** and **YF7** AC drives. Serial-link and function blocks.

All **drive.web** products are designed & assembled in the **U.S.A.**

Get expert help. Call us or email techsupport@driveweb.com

drive.web Training Courses

Free **drive.web** online interactive training seminars take about an hour.

Specialized online and factory training sessions are also available.

To register email training@driveweb.com or call.

