SmartWire Switch Module

Part number: 500-SW-SM16

Default Module Configuration Setup:	
Channel Name:	SW1 Inputs
Input VNet ID:	SmartWire 2 Inputs x194
Logger Sample Rate	20
Type:	SWITCH MODULE
Serial Number:	
Firmware Version:	2
Switch Bus Terminator Resistor	ON

NOTES:
- Requires DataLinkII 3.8.5 or greater
- Requires a SmartWire Extension cable #580-CA-BN5P-xxx for connection to SmartWire or currently installed switch bus devices. xxx refers to the length, available in 6", 12", 18", 24", 36", 48", 60", 72", 84", 96", 108", 120"

Description:

The Switch Module is used to add 16 additional switched inputs for the SmartWire. Each input can be used to control output channels or monitor/record event information on the SmartWire. An event can be anything you wish to record that has two states, ON or OFF. Each input can be configured for Voltage triggered or Ground triggered.

The trigger levels are:
- Ground Trigger: Input is triggered/active when the pin/connection is grounded. (From open to a ground or from a voltage to ground, <2.5volts)
- Voltage Trigger: Input is triggered/active when the pin/connection has voltage applied. (From open to voltage or from a ground to voltage, >2.7 volts)

Hardware Installation

Avoid mounting near heat sources and high voltage ignition wires. The Switch Module must be mounted in a location where the temperature does not exceed 185 degrees or the module may be damaged. After you have mounted the Switch Module, connect the individual wires from the module to the event or switched inputs. Twenty gauge or less wire may be used since the switch inputs draw minimal current.

Once installed, the Switch Bus Terminating Resistor settings must be programmed for each device connected to the Switch Port. This is performed within the settings window, in the DataLinkII software, for each device. By Default, all devices on the Switch Bus are shipped with the Switch Bus Terminating Resistor set to ON. If more than one device is connected to the Switch Port on the SmartWire main unit, only the last devices in line must have the Switch Bus Terminating Resistor set to ON, all other devices between last device and the SmartWire main unit, must be set to OFF.

Currently no items connected to the Switch port on the SmartWire main unit:
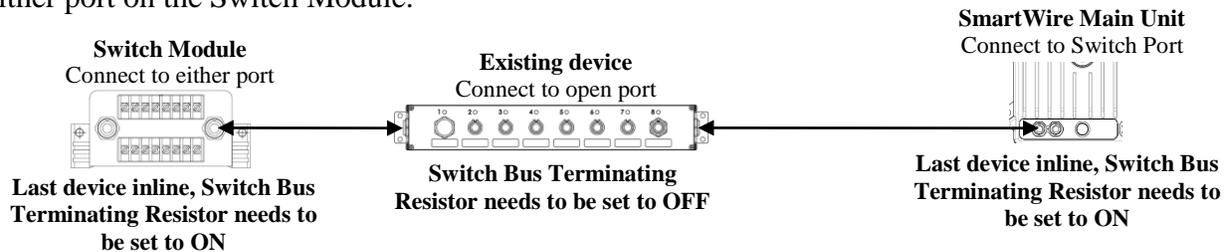
Using the appropriate length cable (#580-CA-BN5P-xxx), connect one end to the Switch port on the SmartWire main unit, the other end can connect to either port on the Switch Module.
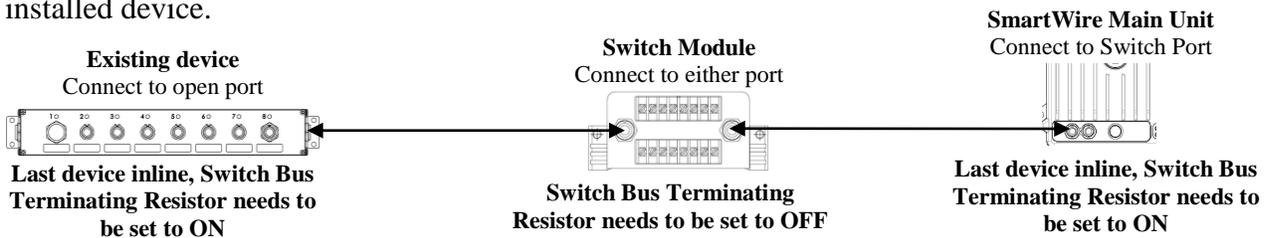
Switch Module
Connect to either port

SmartWire Main Unit
Connect to Switch Port

Either Port can be used

Last device inline, Switch Bus Terminating Resistor needs to be set to ON

Last device inline, Switch Bus Terminating Resistor needs to be set to ON

Devices currently connected to the Switch port on the SmartWire main unit:

Depending on the location where you plan to install the Switch Module, install the switch module in one of the below configurations:

1. Find the open port on the item you have connected to the SmartWire main unit. Using the appropriate length cable (#580-CA-BN5P-xxx), connect one end to this open port and the other end can connect to either port on the Switch Module.

Switch Module
Connect to either port

Existing device
Connect to open port

SmartWire Main Unit
Connect to Switch Port

Last device inline, Switch Bus Terminating Resistor needs to be set to ON

Switch Bus Terminating Resistor needs to be set to OFF

Last device inline, Switch Bus Terminating Resistor needs to be set to ON

2. Unplug the cable connected to the SmartWire main unit Switch Port and plug it into either port on the Switch Module. Using the appropriate length cable (#580-CA-BN5P-xxx), connect one end to the open port on the Switch Module and the other end will connect to either open port on the previously installed device.

Existing device
Connect to open port

Switch Module
Connect to either port

SmartWire Main Unit
Connect to Switch Port

Last device inline, Switch Bus Terminating Resistor needs to be set to ON

Switch Bus Terminating Resistor needs to be set to OFF

Last device inline, Switch Bus Terminating Resistor needs to be set to ON

NOTE: Switch Panels and/or Switch Modules can be mixed and installed in any order.

Software Programming

SmartWire used as Stand Alone (with V-Net sensors, No Data Recorder)	*SmartWire used with V-Net sensors and Data Recorder*
1. Connect PC to SmartWire unit using the USB programming cable supplied with SmartWire unit system. The programming port is located next to the status lights on the SmartWire unit.	1. Connect PC to data recorder using the programming cable supplied with data recorder system.
2. Ensure the main power is turned on for the SmartWire. The Power light will be on and lit Red when power is on.	2. Ensure the main power is turned on for both the SmartWire <u>AND</u> data recorder. The Power light on the SmartWire should be lit Red.
3. Start the DatalinkII program by double clicking on the DatalinkII Program icon located on the Windows desktop of PC.	3. Start the DatalinkII program by double clicking on the DatalinkII Program icon located on the Windows desktop of PC.
4. **<u>Open the car configuration file.</u>** To open the car configuration file, select File located in the main menu bar across the top of the screen and select Open Car Configuration.	4. **<u>Open the car configuration file.</u>** To open the car configuration file, select File located in the main menu bar across the top of the screen, and select Open Car Configuration.
5. A dialog box will be opened	5. A dialog box will be opened
6. The list on the left-hand side of the Select Configuration dialog box will display all of the file folders in the RacePakData subdirectory (C:\RacePakData) that contain valid configuration files with a .rcg file extension. **<u>Select the SmartWire listing by selecting with the cursor.</u>**	6. The list on the left-hand side of the Select Configuration dialog box will display all of the file folders in the RacePakData subdirectory (C:\RacePakData) that contain valid configuration files with a .rcg file extension. **<u>Select the item that matches data recorders serial number by left clicking on it with the mouse (shown in example is V300SD_4447).</u>**
7. The list on the right will now contain the list of configuration files contained in this folder. The factory configuration file for the SmartWire unit will be located here. **Select the OK button.**	7. The list on the right will now show the list of configuration files contained in this folder. **Select the item which matches the data recorder serial number by left clicking, then the OK button.**

Once the configuration file is opened, the Switch Panel can now be synced into the system by performing the following steps.

8. Select **Edit** from the menu bar located at the top of the screen, then select **Read V-Net Config.** Or, select the **Read** button from the toolbar. [Read]
9. A message log window will open and start scrolling indicating that reading is in process. If an error is encountered, verify the power is on and the communication cables are connected correct. Click the **OK** button to close the dialog box and then the **Yes** button to scan all COM ports. Repeat step 9.
10. When the message dialog box reads **"DEVICES READ SUCCESSFULLY",** click the **OK** button.
11. A new channel button labeled [SW1 Inputs] should appear.
12. Select **File** from the menu task bar located at the top of the screen.
13. Click **Save** to save these current settings to the configuration file.
Switch Module is now synced with the SmartWire and ready to be configured for each input

Input Switches – Switch Module

SW1 Inputs Accessed by right-clicking on the SM1

- **Channel Name:** Main channel name for the 16 Hardwired Switched Inputs. Change only if more than one main Switch Module is on the vehicle. *Default=SW1 Inputs, User-programmable*

- **Vnet ID:** Broadcast ID of this channel out to other devices/channels on the V-Net. Requires a change only if more than one Switch Module is installed on vehicle. *Default=SmartWire 2 Switches x191, DO NOT CHANGE-FOR ADVANCED USERS ONLY!*

- **Logger Sample Rate:** Logging sample rate of this channels when used with a Racepak data logger. *Default=20*

- **Type:** Device Type

- **Unit Serial Number:** Serial Number of Switch Module unit

- **Individual Switches:** Programming area for the 16 Hardwired Switched Inputs

  - **Switch Number:** Designates the input channel number (not actual pin/connection number)

  - **Name** Channel names for each of the 16 Hardwired Switched Inputs. Can be changed to match the device this switch or input is controlling. It is recommended to start the name with a reference to the type (ex: SM Input #2 for Fuel Pump = "SMIN#2 Fuel Pump"). Name must start with a letter. *Default=SW1 Inp #n*

  - **Trigger Level:** Designates if this input is to be Ground Triggered or Voltage Triggered to be True.

    - Ground Trigger: Input is triggered/active when the input is grounded.

    - Voltage Trigger: Input is triggered/active when the it has a voltage above 2.7v applied.

- **Switch Bus Terminating Resistor:** Determines if the switch module is internally terminated. Terminating resistor should be ON if one switch module/panel is installed. If more than one switch module/panel is installed, the last switch device should have the terminating resistor turned on, all others should be turned OFF. The SmartWire unit has a setting for its Terminating resistor that needs to be turned ON and the last switch module/panel should have its Terminating resistor turned ON.

Buttons (lower right of window):

- **Start Real-Time Display:** Shows real-time data for this one particular window.

- **Send Configuration:** Sends the windows current values of this channel to the Switch Module

- **Read Configuration:** Reads the values from the Switch Module and populates the window with the currently programmed values of this channel.

1.84

0.84

4.35

3.95

3.45

10-24 THREAD

0.84

0.26

3.95

10-24 THREAD

0.51

0.84

1.84