Switches description

General Information

Global rail

As mentioned in the feature overview, the switches implemented on the SM card are grouped in three different types, to best suit various ECU applications. The specific possible rail voltage selections for these three types of switches are described in the sections below.

The rail selection depends on the type of switch, but for each type, a global rail setting is available among the choices. For card revisions prior to Rev. 2.5, this Global rail defaulted to IGN1. With Rev. 2.5 and higher, the rail can be selected among ACC, ECU 5V, Crank, IGN3, IGN1, Spare1, Spare2, Batt.

Switches configuration

Furthermore, each switch must be configured among five possible configurations:

Switch configuration	Description
Unconfigured	Switch is disabled (default)
Active High	When off, the switch will sink signal to ground; When on, the switch will source to Rail
Active Low	When off, the switch will source signal to Rail; When on, the switch will sink to ground
Open Drain	When off, the switch will be open state; When on, the switch will sink signal to ground
Open Source	When off, the switch will be open state; When on, the switch will source signal to Rail

This configuration is done via the three tabs of the SM Configuration Panel.

Discrete switches

The 30 discrete switches can be used to simulate simple ON/OFF switching applications.

There is a unique rail setting for all discrete switches, and its value is either **Global** (or IGN1) for older cards) or **Open**. The selection is done from the SM Configuration Panel. Selecting **Open** for the rail disables all switches.
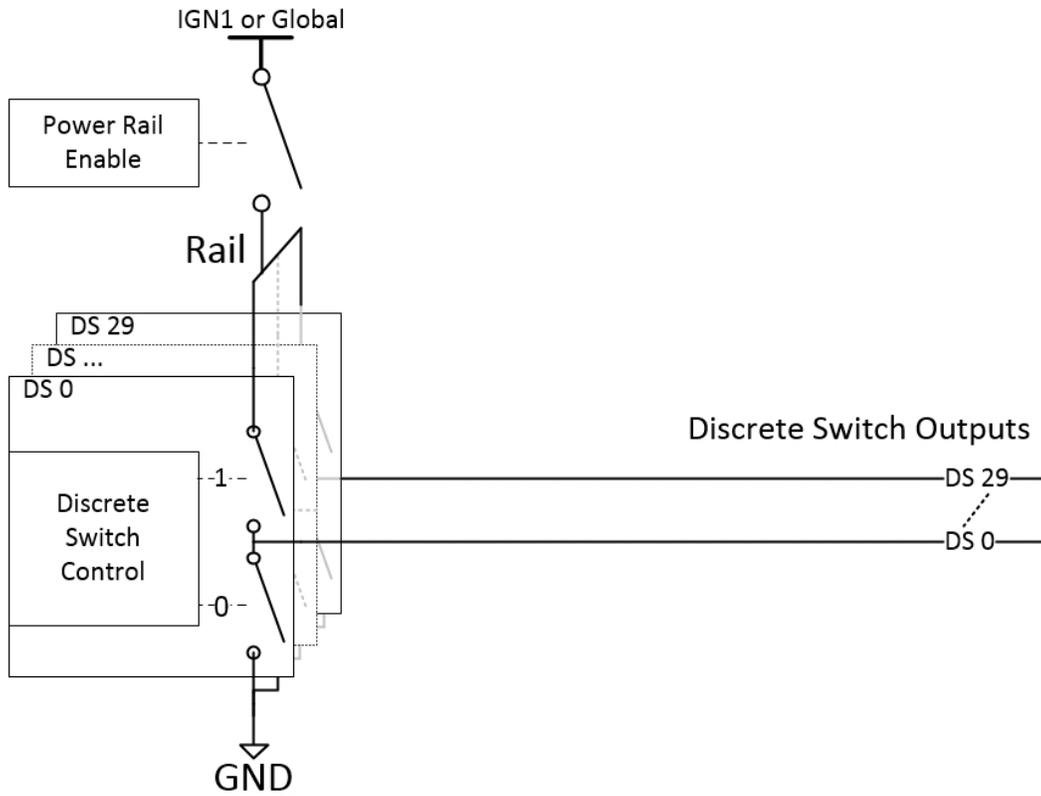
Once this configuration is chosen, the operator controls the ON/OFF state of the discrete switches outputs from the toggle buttons of the SM Run-Time Panel.

Flexible switches

The five (5) flexible switches are essentially similar to the discrete switches, except that their rail is individually selected among Batt, Global (or IGN1 for older cards), ECU 5V, or an External Voltage input. The external voltage is individual and supplied via the ELCO connector. Each switch can be disabled individually by selecting Open for the rail. The rail configuration is done via the SM Configuration Panel.
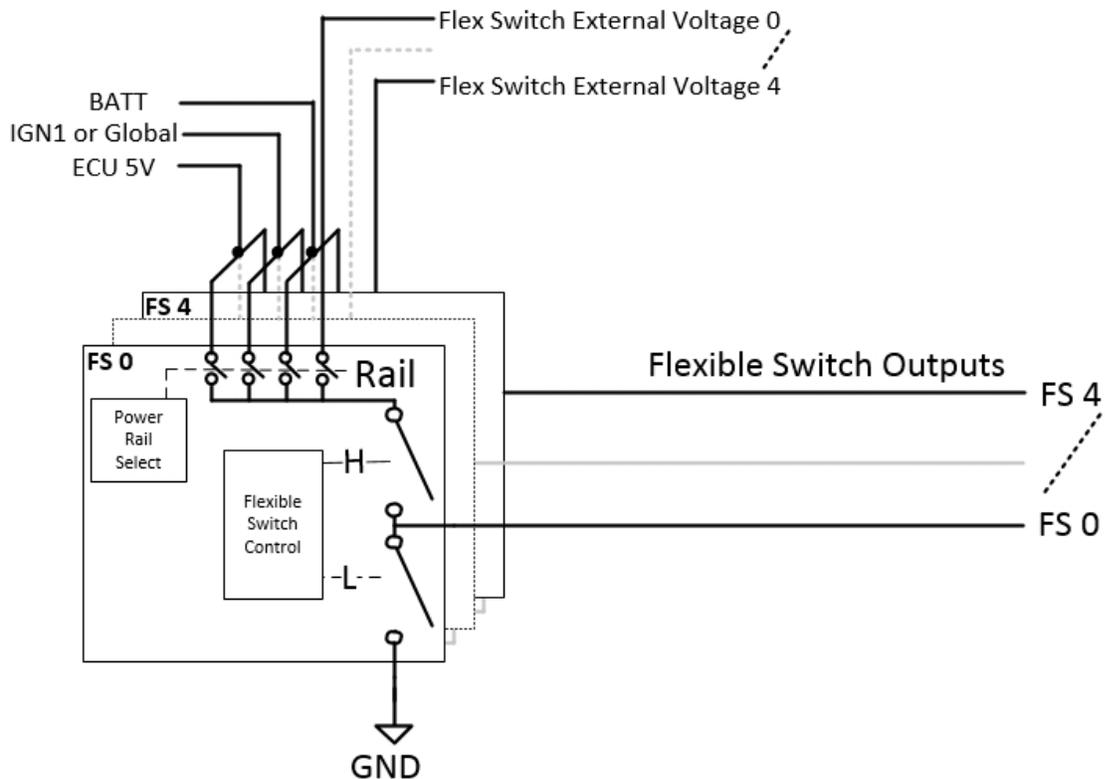
Once this configuration is chosen, the operator controls the ON/OFF state of the flexible switches outputs from the toggle buttons of the SM Run-Time Panel.

Rotary switch

The rotary switch is essentially a group of 8 switches controlled from one single input. The user selects the active switch from an 8-position knob in the SM Run-Time Panel. The user can define which of the 8 switches are active for each knob position, via a matrix of checkboxes in the SM Configuration Panel.

A single rail is available for the rotary switch. From the SM Configuration Panel, the user can assign it to Batt, Global (or IGN1 for card revision prior to 2.5), ECU5V, or an External Voltage input. When the rail is set to Open, all eight output switches are disabled.

External
Voltage

IGN1
or
Global

BATT

ECU 5V

Rail

Power Rail
Select

RS 7
RS 6
RS 5
RS 4
RS 3
RS 2
RS 1
RS 0

RS 7
RS 6
RS 5
RS 4
RS 3
RS 2
RS 1
RS 0

Rotary
Switch
Control

-1-

-0-

GND