This SIMPL+ module provides robust 2-way control for Samsung Commercial (MDC) and Consumer (EX-Link) displays. It features automatic protocol detection and adaptive command formatting.

Device Configuration

To ensure proper communication, configure the Samsung Display with the following settings:

Hardware Connections

- **Commercial (MDC):** Connect via DB9 RS232 Input.
- **Consumer (EX-Link):** Connect via 3.5mm EX-Link (Service) jack. Requires a stereo 3.5mm to DB9 adapter (Tip=RX, Ring=TX, Sleeve=GND).

Menu Settings

- **Display ID:** Set to `1` (or match the `p_nDisplayID` parameter).
  Home > ID Setup > 1
- **PC Connection:** Set to RS232.
  Home > PC Connection > RS232
- **Network Standby / Power On:** Enable to allow "Power On" commands while the TV is off.
  Menu > Network > Expert Settings > Power On with Mobile (or similar)

COM Port Settings (Crestron)

- **Baud Rate:** 9600
- **Data Bits:** 8
- **Parity:** None
- **Stop Bits:** 1
- **Handshaking:** None

> **Adaptive Polling & Protocol Detection:** This module features an intelligent polling engine that defaults to **MDC Mode**.
>
> - **Polling Enable:** Use `Enable_Polling_b` to start/stop the feedback engine. It defaults to **Enabled**.
> - **Auto-Switching:** If the display fails to respond to 3 consecutive polls, the module will automatically switch between **MDC** and **EX-Link** protocols and issue a warning to the console.
> - **Broadcast Support:** Polling uses the Broadcast ID (0x00) to ensure responses even if the ID is unknown, but will warn if the TV's ID does not match the `p_nDisplayID` parameter.

Signal Definitions

Inputs (Control)

Signal Name	Type	Description
Enable_Polling_b	**DIGITAL**	Set **High (1)** to enable the status polling loop. Defaults to **High** on startup.
Power_On_b / Off_b	**DIGITAL**	Pulse **High (1)** to turn the display On or Off.

Volume_Up_b / Down_b	**DIGITAL**	Pulse **High (1)** to increment or decrement volume.
Mute_Toggle_b	**DIGITAL**	Pulse **High (1)** to toggle mute state.
Input_HDMI1_b ...	**DIGITAL**	Pulse **High (1)** to select the corresponding input.
Keypad_..._b (0-9, Menu, etc.)	**DIGITAL**	Pulse **High (1)** to emulate a remote button press (Parity: ExLink 0x0D / MDC 0xFE).
Set_Volume_n	**ANALOG**	Decimal value. Range: `0d` to `100d` .
From_Device_s	**STRING**	Raw RS232/EX-Link data. Connect to COM Port **RX$**.

Outputs (Feedback)

Signal Name	Type	Description
To_Device_s	**STRING**	Formatted Command String. Connect to COM Port **TX$**.
Power_Is_On_fb	**DIGITAL**	**High (1)** = On; **Low (0)** = Off.
Volume_Level_fb	**ANALOG**	Decimal value. Range: `0d` to `100d` .
Mute_Is_On_fb	**DIGITAL**	**High (1)** = Muted; **Low (0)** = Unmuted.
Protocol_Mode_fb	**ANALOG**	Decimal value. `1d` = MDC, `2d` = EX-Link.

Parameters

Parameter Name	Type	Description
p_nDisplayID	**INTEGER**	The Display ID set in the TV menu. Default is usually `1` (0x01) or `0` (0x00).