Partner: Crestron Electronics, Inc.

GENERAL INFORMATION

SIMPLWINDOWS NAME:	**CMS Display Interface**
CATEGORY:	**TV/Video Projecotor**
VERSION:	**V2.0**
SUMMARY:	**Interfaces with display modules**
GENERAL NOTES:	**This module acts as an interface between rest of the system and any display module. Keeps track of current state of display, timing for warm up and cool down and interacts with any screen and/or lift controls. When text for currently routed source to display are passed thru module before being sent to touchpanel, module will send a 'Cooling' and/or 'Warming' text along with currently routed source.** **To manually select an input, you must use an Analog Init symbol with the following values:** **1d = Video** **2d = S-Video** **3d = Component** **4d = RGB** **5d = DVI** **The module operates as follows:** ***Power On Sequence* - Any input selection will power the device on. The "screen-down-relay" output will pulse. If the "lift-delay" parameter value is 0s, the "power-on-232" output will pulse. If the "en-warming" input is enabled, after the "init-time" delay expires, "input-nnnn-232" will pulse.** **Note: The display cannot be turned off during warm up.** **If the "lift-delay" parameter is a value other than zero, the above sequence will occur AFTER the "lift-delay" time expires.** ***Power Off Sequence* - The "power-off" input will turn the display device off. The "screen-up-relay" output will pulse. If the "en-cooling" input is enabled, after the "cool-time" delay expires, the "lift-up-relay" output will pulse.** **Note: The display cannot be turned on during cool down.** ***Manual Lift Controls* - The "lift-up-button" input will turn the display off and pulse "lift-up-relay" output after cool down time has expired. If the display is already off and is NOT cooling, the input will pulse the "lift-up-relay" immediately.** ***Display Mute* - If the display is muted, selecting an input will un-mute the display, then select the input.**

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CONTROL:

en-macro	D	Latch to enable macro
en-cooling	D	Latch to enable cooling logic
en-warming	D	Latch to enable warming logic
en-scaler	D	Latch to enable scaler use. Sets 'status$' output string to always say "RGB Input"
power-on/off	D	Pulse to turn display on/off
mute-on/off/tog	D	Pulse to turn picture mute on/off or toggle
sel-input	A	Set value to select display input
lift-up/down-button	D	Pulse to manually raise/lower lift relay
screen-up/down-button	D	Pulse to manually raise/lower screen relay
external-power-on/off-fb	D	True feedback from display module indicating power on/off status
external-mute-on/off-fb	D	True feedback from display module indicating picture mute on/off status
external-input-*-fb	D	True feedback from display module indicating currently selected input.
display-*-source$	S	Current source routed to display input. Text for each source type is needed for proper operation. Module will keep track of current source so that it will be properly reflected if user manually switches inputs of display on tools page.

FEEDBACK:

power-on/off-fb	D	Latched signal indicating display is on/off
mute-on/off-fb	D	Latched signal indicating display mute is on/off
input-*-fb	D	Latched signal indicating current input
power-on/off-232	D	Pulsed signal used to turn display on/off (ties to display module)
mute-on/off-232	D	Pulsed signal used to turn picture mute on/off (ties to display module)
same-input-232	D	Pulsed signal used to select the same input on the display device regardless of what input was selected. Use when display is connected to an external scaler. (ties to display module)

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input-*-232	D	Pulsed signal used to select display input (ties to display module)
warming-fb	D	Latched signal active during display warm up. Based on 'init-time' parameter
cooling-fb	D	Latched signal active during display cool down. Based on 'cool-time' parameter
warming-bar	A	Ramping signal (0 - 65535) changes during display warm up
cooling-bar	A	Ramping signal (0 - 65535) changes during display cool down
lift-up/down-relay	D	Pulsed output used to raise/lower display lift. Pulse length based on 'lift-relay-pulse' parameter
lift-up-busy	D	Latched signal active while lift is moving. Active time based on 'lift-delay' parameter
screen-up/down-relay	D	Pulsed output used to raise/lower screen. Pulse length based on 'screen-relay-pulse' parameter
display-source$	S	Current source routed to display. (ties to touchpanel text field)

Parameters:

init-time	P	Warm up time value (seconds)
cool-time	P	Cool down time value (seconds)
lift-delay	P	Lift delay time value (seconds). Time it takes for the lift to fully drop.
lift-relay-pulse	P	Relay pulse length (seconds)
screen-relay-pulse	P	Relay pulse length (seconds)

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