DLO HomeDock PRO V3
Module Application Guide

Description

This module allows a Crestron 2-series processor to control an Apple iPod via a DLO HomeDock PRO. The module provides the same transport and menu functions available through the DLO infrared remote. Additionally, the module provides text feedback for currently playing track and allows for full menu navigation via a two-way touchpanel. The HomeDock PRO offers not only full control of the iPod but provides an S-Video and Composite video output for video enabled iPods. The video output features a GUI that allows the user to see their iPods information onscreen while supporting features such as cover art and different skin looks. Go see DLO's developers link for more information http://www.dlo.com/products/homedockpro_Prod.tpl .

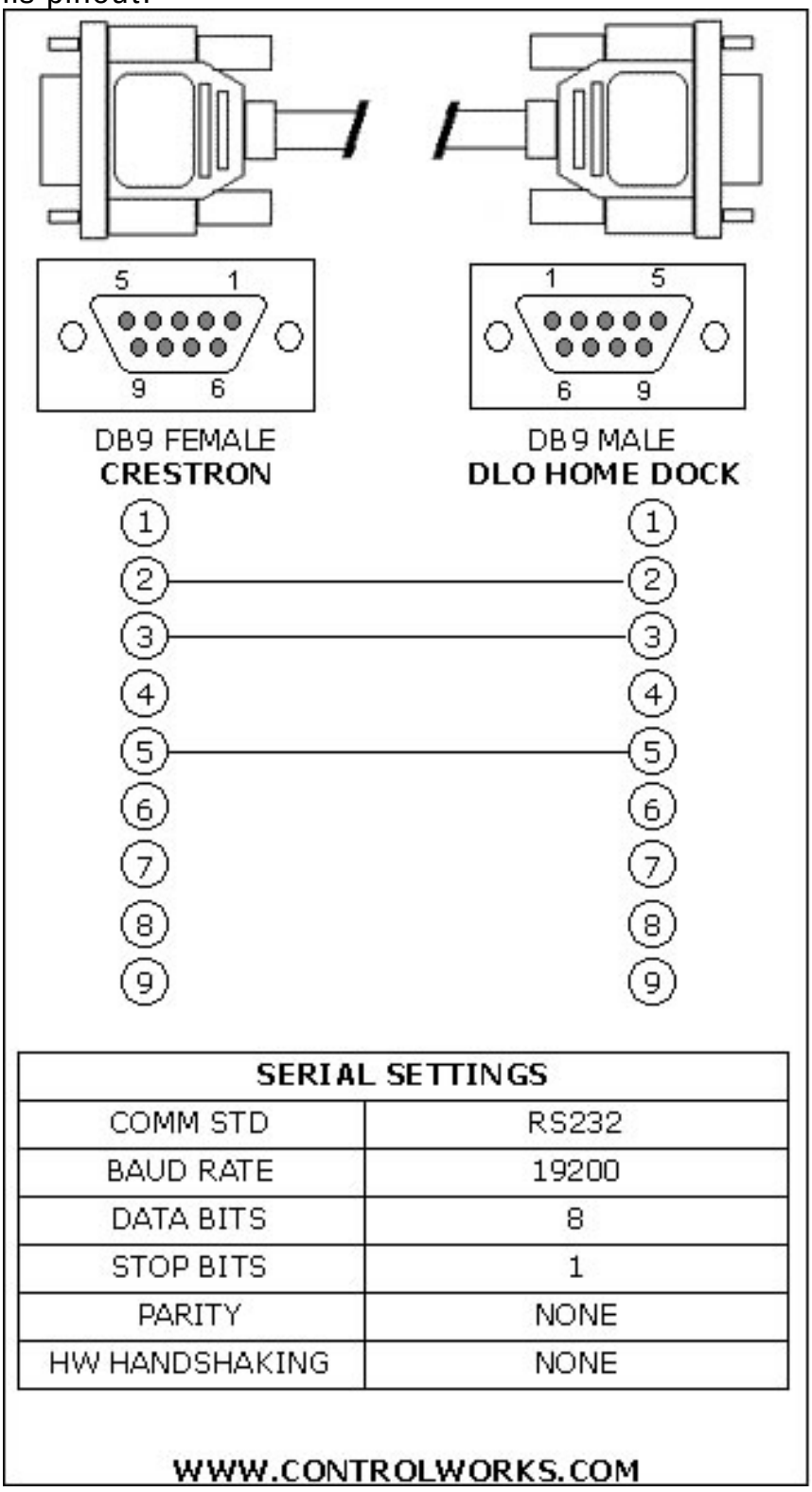
Supported Processors

This module is supported on any 2-series processor with an available com port.

Compatibility			Processor Requirements	
2-Series Compatible	NOT CNMSX Compatible	NOT System Builder Compatible	Ethernet NOT NEEDED	Compact Flash NOT NEEDED

Serial Cable Pinout

Use the DLO supplied RJ-45 to DB-9 adapter and cable. Should you need to extend the supplied cable use this pinout.



SERIAL SETTINGS	
COMM STD	RS232
BAUD RATE	19200
DATA BITS	8
STOP BITS	1
PARITY	NONE
HW HANDSHAKING	NONE

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Module Application

It is strongly suggested that you load the Demo program and Xpanel to gain an understanding of the product before implementing the module in your own program.

Protocol functionality of the HomeDock PRO

It is not possible to select a result when browsing by pressing the returned text field (similar to the CEN-IDOC). DLO's intention is that you use the joystick commands, as you would on the remote, to navigate the on-screen UI.

Using [dlo_rewind] and [dlo_ffw] will cause the DLO com port buffer to overflow, causing a delay in operation. It typically takes 10-15 seconds for a new command to execute after fast forwarding or rewinding for any length of time. For example, if you fast forward for 5 seconds, and then press pause, there will then be a delay before the DLO actually stops fast forwarding and then pauses.

The DLO has slightly different navigation behavior depending on whether you are navigating music or videos. When browsing music pressing **Home** will send you to the top of the menu. Pressing **Left** will send you back up one level only. However these two buttons will not function this way when you are watching the video. When a video is playing you have to press **Enter** in order for the DLO to release the video selection and send you back to the video menu.

We are in communication with DLO engineering to create more robust integration between the HomeDock and Crestron. DLO has been responsive and we expect there to be more firmware revisions offering new functions and more stability in the future.

Signal And Parameter Descriptions

Bracketed signals such as "[signal_name]" are optional signals

DIGITAL INPUTS

[dlo_display_query]	Pulse to refresh display text on touchpanel. This is commonly used at the startup of a program.
[dlo_status_query]	Pulse to refresh feedback all feedback status. This is commonly used at startup of a program.
[dlo_version_query]	Pulse to retrieve the firmware version
[dlo_power_toggle]	Pulse to toggle the power of the DLO
[dlo_power_on]	Pulse to send discrete power on to the DLO
[dlo_power_off]	Pulse to send discrete power off to the DLO
[dlo_mode_toggle]	Pulse to toggle the iPod in iPod mode or DLO mode
[dlo_dock_mode_on]	Pulse to use the docked iPod with the DLO
[dlo_dock_mode_off]	Pulse to use the docked iPod as a standalone device
[dlo_screensaver_toggle]	Pulse to toggle the DLO screen save on and off
[dlo_screensaver_on]	Pulse to turn on the DLO screen saver
[dlo_screensaver_off]	Pulse to turn off the DLO screen saver
[dlo_volume+]	Pulse or latch to raise the variable audio output of the DLO. Pulsing or latching will unmute the DLO audio output if muted.
[dlo_volume-]	Pulse or latch to lower the variable audio output of the DLO. Pulsing or latching will unmute the DLO audio output if muted.
[dlo_volume_mute_toggle]	Pulse to toggle the mute of variable audio output of the DLO
[dlo_play/pause]	Pulse to toggle playback
[dlo_track-]	Pulse to track back
[dlo_track+]	Pulse to track forward
[dlo_rewind]	Pulse to scan back. Play will resume when signal goes low
[dlo_ffw]	Pulse to fast forward. Play will resume when signal goes low
[dlo_shuffle_toggle]	Pulse to toggle shuffle tracks on and off
[dlo_shuffle_on]	Pulse to turn shuffle on
[dlo_shuffle_off]	Pulse to turn off shuffle
[dlo_repeat]	Pulse to ring through repeat off, repeat track, and repeat all
[dlo_home]	Pulse to send the home dock to the main menu
[dlo_menu_up]	Pulse to move the selection on the menu up once
[dlo_menu_down]	Pulse to move the selection on the menu down once
[dlo_menu_left]	Pulse to move the selection on the menu left once, moves you back one level in the menu
[dlo_menu_right]	Pulse to move the selection on the menu right once
[dlo_menu_enter]	Pulse to select the highlighted selection on the menu. Pulse this input to exit a currently playing video selection.
[dlo_menu_page_up]	Pulse to move the selection on the menu up one page
[dlo_menu_page_down]	Pulse to move the selection on the menu down one page
[dlo_time_mode_toggle]	Pulse to toggle whether the module will report time feedback
[dlo_time_mode_enable]	Pulse or latch high to enable track time feedback
[dlo_time_mode_disable]	Pulse or latch high to disable track time feedback
[dlo_ipod_name_query]	Pulse to poll the iPod for its name

ANALOG INPUTS

[dlo_set_volume_level_percent] ..... Route an analog percent to this input to force the DLO to a certain volume

[dlo_set_volume_level_0-15] ..... Route an analog decimal (range 0d to 15d) to this input to force the DLO to a certain volume. The HomeDock Pro natively handles the volume in this range, the module converts the values to a percent for use on a percent object on a touchpanel.

SERIAL INPUTS

dlo_rx$. ..... Route to rx$ on com port.

DIGITAL OUTPUTS

[dlo_power_on_fb] ..... Signal is high when the DLO is powered on
[dlo_power_off_fb] ..... Signal is high when the DLO is powered off
[dlo_dock_mode_fb] ..... Signal is high when iPod is on dock mode
[dlo_ipod_mode_fb] ..... Signal is high when the iPod is in iPod mode
[dlo_no_ipod_fb] ..... Signal is high when there is no iPod in the DLO
[dlo_ipod_present_fb] ..... Signal is high when there is a iPod in the DLO
[dlo_video_not_playing_fb] ..... Signal is high when video is not playing
[dlo_video_playing_fb] ..... Signal is high when video is playing
[dlo_volume_mute_on_fb] ..... Signal is high when mute is high
[dlo_volume_mute_off_fb] ..... Signal is high when mute is low
[dlo_play_fb] ..... Signal is high when playback is playing
[dlo_pause_fb] ..... Signal is high when playback is paused
[dlo_stop_fb] ..... Signal is high when playback is stopped
[dlo_shuffle_on_fb] ..... Signal is high when shuffle is enabled
[dlo_shuffle_off_fb] ..... Signal is high when shuffle is not enabled
[dlo_repeat_off_fb] ..... Signal is high when repeat is not enabled
[dlo_repeat_track_fb] ..... Signal is high when repeat track is enabled
[dlo_repeat_all_fb] ..... Signal is high when repeat all is enabled
[dlo_line1-9_fb] ..... Signal is high when the respective DLO selection line is highlighted
[dlo_time_mode_enabled] ..... Signal is high when time feedback analog signals are enabled

ANALOG OUTPUTS

[volume_level] ..... Displays the DLO volume from 0d-15d
[dlo_volume_percent] ..... Displays the volume scaled 0-100%
[dlo_current_track_number] ..... Displays the current track number playing
[dlo_total_track_number] ..... Displays the total tracks in the current list
[dlo_time_elapsed] ..... Displays the elapsed time of the currently playing track
[dlo_time_total] ..... Displays the length of the currently playing track
[dlo_time_remaining] ..... Displays the time remaining of the currently playing track

SERIAL OUTPUTS

dlo_tx$	Route to com port tx$.
[dlo_current_artist$]	Displays the current playing artist name.
[dlo_current_album$]	Displays current album for the playing artist.
[dlo_current_song$]	Displays current song name for the playing song.
[dlo_menu_title$]	Text describing what part of the menu tree you are in…ie “Main Menu” or “Music”.
[dlo_line1-9$]	Text up to nine lines, one for each of the selection lines.
[dlo_version$]	Displays the current firmware level in the home dock.
[dlo_ipod_name$]	Displays the name of the docked iPOD.

PARAMETERS

dlo_firmware_version	Double-click and select the firmware version range of the connected DLO HomeDock Pro.

Support

This module is supported by ControlWorks Consulting, LLC. Should you need support for this module please email support@controlworks.com or call us at 440-729-4640. ControlWorks normal office hours are 9 AM to 5 PM Eastern, Monday through Friday, excluding holidays.

Before calling for support, please ensure that you have loaded and tested operation using the included demonstration program and touchpanel(s) to ensure that you understand the correct operation of the module. It may be difficult for ControlWorks to provide support until the demonstration program is loaded.

Updates, when available, are automatically distributed via Email notification to the address entered when the module was purchased. In addition, updates may be obtained using your username and password at http://www.thecontrolworks.com/customerlogin.aspx .

Distribution Package Contents

The distribution package for this module should include:

dlo_home_dock_pro_v4.umc	Crestron User Module
dlo_home_dock_pro_parser_v4.usp	SIMPL+ file used within dlo_home_dock_pro_v4.umc
dlo_home_dock_pro_parser_v4.ush	SIMPL+ header file
dlo_home_dock_pro_demo_v4.smw	Demo program for PRO2 processor
dlo_home_dock_pro_demo_XPANEL_v4.vtp	Demo touchpanel XPANEL
dlo_home_dock_pro_Help_v4.pdf	Help file for dlo_home_dock_pro_v4.umc

Revision History

V1 -- gary@controlworks.com 2007.04.25
Initial release

V2 -- gary@controlworks.com 2008.05.22
-changes due to DLO firmware changes
-menu lists now include a "%LD\x0D" at the end of a list, changed parsing to deal with this
-added firmware switch to handle main menu level number differences in DLO firmware

V3 -- gary@controlworks.com 2008.07.02
-added more features from new protocol
-volume feedback
-track number feedback
-track time feedback
-iPod name text field
-fixed a parsing bug in menu title when no ipod was docked

Development Environment

This version of the module was developed on the following hardware and software. Different versions of hardware or software may or may not operate properly. If you have questions, please contact us.

DLO Hardware	**Firmware Version**
Home Dock Pro	2.0.0
Crestron Hardware	**Firmware Version**
Crestron PRO2 Processor	4.001.1012
Software	**Software Version**
Crestron SIMPL Windows	2.11.18.00
Crestron Vision Tools Pro-e	3.9.40
Crestron Database	20.05.022.00

ControlWorks Consulting, LLC Module License Agreement

Definitions:
ControlWorks, *We*, and *Us* refer to ControlWorks Consulting, LLC, with headquarters located at 701 Beta Drive, Suite 22 Mayfield Village, Ohio 44143-2330. *You* and *Dealer* refer to the entity purchasing the module. *Client* and *End User* refer to the person or entity for whom the Crestron hardware is being installed and/or will utilize the installed system. *System* refers to all components described herein as well as other components, services, or utilities required to achieve the functionality described herein. *Module* refers to files required to implement the functionality provided by the module and may include source files with extensions such as UMC, USP, SMW and VTP. *Demo Program* refers to a group of files used to demonstrate the capabilities of the Module, for example a SIMPL Windows program and VisionTools Touchpanel file(s) illustrating the use of the Module but not including the Module. *Software* refers to the Module and the Demo Program.

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Provision of Support
We provide limited levels of technical support only for the most recent version of the Module as determined by Us. We do not provide support for previous version of the module, modifications to the module not made by Us, to persons who have not purchased the module from Us. In addition, we may decline to provide support if the Demo Program has not been utilized. We may withdraw a module from sale and discontinue providing support at any time and for any reason, including, for example, if the equipment for which the Module is written is discontinued or substantially modified. The remainder of your rights and obligations pursuant to this license will not be affected should ControlWorks discontinue support for a module.

Modification of Software
You may not decrypt (if encrypted), reverse engineer, modify, translate, disassemble, or de-compile the Module in whole or part. You may modify the Demo Program. In no event will ControlWorks Consulting, LLC be liable for direct, indirect, incidental or consequential damages resulting from You modifying the Software in any manner.

Indemnification/Hold Harmless
ControlWorks, in its sole and absolute discretion may refuse to provide support for the application of the Module in such a manner that We feel has the potential for property damage, or physical injury to any person. Dealer shall indemnify and hold harmless ControlWorks Consulting LLC, its employees, agents, and owners from any and all liability, including direct, indirect, and consequential damages, including but not limited to personal injury, property damage, or lost profits which may result from the operation of a program containing a ControlWorks Consulting, LLC Module or any component thereof.

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