



Module Interface Specification

for a

**Generic IR DVD/VCR Combo
Device**

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Introduction

This is a reference manual to describe the interface provided between an AMX NetLinx system and a DVD/VCR Combo controlled by IR.

This module was written using NetLinx Studio version v2.6 build 2.6.0.191, based on Standard NetLinx API (SNAPI) R.1.9.0

Overview

The module translates between the standard interface described below and the disc device IR protocol.

Some functionality in the device interface may not be implemented in the API interface. In cases where device functions are desired but not API-supported, the PASSTHRU command may be used to send any and all device-protocol commands to the device. See the PASSTHRU command and the [Adding Functions to Modules](#) section for more information.

Implementation

To interface to the Control Life DVD/VCR Combo Device module, the programmer must perform the following steps:

1. Define the device ID for the disc device that will be controlled.
2. Define the virtual device ID that the DVD/VCR Combo IR module will use to communicate with the main program and User Interface. Virtual devices use device numbers 31000 - 32000.
3. The Control Life DVD/VCR Combo Device module must be included in the program with a DEFINE_MODULE command. This command starts execution of the module and passes in the following key information: the virtual device ID for communicating to the main program., and the device ID of the disc device to be controlled.
4. Combine the touch panel device with the virtual device. When the channel is pushed, it will then trigger to corresponding function directly.

An example of how to do this is shown below.

```
IR01           = 5001:03:0 // IR 1 - Device Detail of IR Device
vVHSDVD       = 33114:01:0 // Virtual Device for VHS/DVD Combo
tpVHSDVD      = 10001:14:0 // Touch Panel for VHS/DVD Combo
```

```
DEFINE_COMBINE
(vVHSDVD, tpVHSDVD)
```

```
DEFINE_START
```

```
DEFINE_MODULE 'CL_DVDVCR_IR_dr1_0_0' IR1(vVHSDVD, IR01)
```

Port Mapping

This module uses multiple virtual devices in order distinguish events for one zone from another.

Virtual Device	Channels	Levels	Control	Feedback
31001:1:0	All Channels	All Levels	All Control Cmds	All Feedback Cmds

Table 1 - Port Mapping

Channels

The channels supported by the module are listed below. These channels are associated with the virtual device(s).

Note: An ‘*’ indicates an extension to the standard API.

Channel	Description
1	PULSE: Play
2	PULSE: Stop
3	PULSE: Pause
4	PULSE: Next
5	PULSE: Previous
6	PULSE: Scan Forward
7	PULSE: Scan Reverse
8	PULSE: Record
9	PULSE: Cycle Power
10	PULSE: 0 Digit Button
11	PULSE: 1 Digit Button
12	PULSE: 2 Digit Button
13	PULSE: 3 Digit Button
14	PULSE: 4 Digit Button
15	PULSE: 5 Digit Button
16	PULSE: 6 Digit Button
17	PULSE: 7 Digit Button
18	PULSE: 8 Digit Button
19	PULSE: 9 Digit Button
20	PULSE: +10 Digit Button
21	PULSE: Enter Button
22	PULSE: Next Station preset
23	PULSE: Previous Station Preset
27	PULSE: Set Power On Note: If the device supports discrete power function, IR channel 27 will be pulsed. Otherwise, IR channel 9 will be pulsed. IR will only be pulse when the power status is off
28	PULSE: Set Power Off Note: If the device supports discrete power function, IR channel 28 will be pulsed. Otherwise, IR channel 9 will be pulsed. IR will only be pulse when the power status is on
30	PULSE: Selects input TV,1
31	PULSE: Selects input VIDEO,1
32	PULSE: Selects input VIDEO,2
33	PULSE: Selects input VIDEO,3
34	PULSE: Selects input TAPE,1
35	PULSE: Selects input TAPE,2
36	PULSE: Selects input CD,1
37	PULSE: Selects input TUNER,1
38	PULSE: Selects input PHONO,1
39	PULSE: Selects input AUXILIARY,1
40	PULSE: Cycle tuner band
43	PULSE: Cancel Button
44	PULSE: Menu Button
45	PULSE: Move Menu Cursor Up
46	PULSE: Move Menu Cursor Down
47	PULSE: Move Menu Cursor Left
48	PULSE: Move Menu Cursor Right
50	PULSE: Exit button

51	PULSE: Move Menu Cursor Up Left
52	PULSE: Move Menu Cursor Up Right
53	PULSE: Move Menu Cursor Down Left
54	PULSE: Move Menu Cursor Down Right
55	PULSE: Set Disc Next
56	PULSE: Set Disc Previous
57	PULSE: VIDEO button
63	PULSE: Sleep button
65	PULSE: Function button
66	PULSE: Setup Button
67	PULSE: Select DVD mode
68	PULSE: Select VCR mode
80	PULSE: Clear Button
99	PULSE: Display Button
100	PULSE: Subtitle Button
101	PULSE: Info Button
102	PULSE: Favorite Button
103	PULSE: Continue Button
104	PULSE: Return Button
105	PULSE: Guide Button
112	PULSE: AB Repeat Button
114	PULSE: Title Button
117	PULSE: Angle Button
118	PULSE: Audio Button
119	PULSE: Cycle search speed
120	PULSE: Cycle the disc tray open and closed / Eject Tape
121	PULSE: Reset Tape Counter
124	PULSE: Cycle the random state
125	PULSE: Cycle the repeat state
178	PULSE: Random is on
179	PULSE: Random-all is on
180	PULSE: Random-off is on
181	PULSE: Repeat-disc is on
182	PULSE: Repeat-track is on
183	PULSE: Repeat-all is on
184	PULSE: Repeat-off is on
185	PULSE: Frame Forward
186	PULSE: Frame Reverse
188	PULSE: Slow Forward
189	PULSE: Slow Reverse
192	PULSE: Cycle the scan speed
196	PULSE: Momentary Function Channel: Cycle input source when channel is activated
224	PULSE: Cycle station preset group/bank
225	PULSE: Increment Station
226	PULSE: Decrement station
227	PULSE: Scans for next station
228	PULSE: Scans for previous station
229	PULSE: Seeks for next station
230	PULSE: Seeks for previous station
234	PULSE: Cycle on screen or front panel display info
235	PULSE: Select Previous station
*238	Tx: Transmitting Data - provides feedback only
241	ON: Play is active - provides feedback only
242	ON: Stop is active - provides feedback only
243	ON: Pause is active - provides feedback only
246	ON: Scan Forward is active - provides feedback only
247	ON: Scan Reverse is active - provides feedback only
249	ON: Slow Forward is active - provides feedback only
250	ON: Slow Reverse is active - provides feedback only

251	ON: Device is Online - used for feedback only OFF: Device is not Online
252	ON: Data is Initialized - use for feedback only OFF: Data is not Initialized
255	ON: Set power on - used for feedback also OFF: Set power off

Table 2 - Virtual Device Channel Events

Command Control

The UI module controls the disc device via command events (NetLinx command *send_command*) sent to the COMM module. The commands supported by the COMM module are listed below.

Note: An '*' indicates an extension to the standard API.

Command	Description
?DEBUG	Request the state of the debug feature. ?DEBUG
DEBUG-<value>	Set the state of debugging messages in the UI module and the Comm. module. Note: See Programming Notes section. <value> : 1 = set only error messages on 2 = set error and warning messages on 3 = set error, warning & info messages on 4 = set all messages on DEBUG-1
?DISCCAPACITY	Get the number of disc slots supported by the device. ?DISCCAPACITY
PASSTHRU-<channel>	Allows user the capability of sending commands directly to whatever unit is attached with minimal processing by the module. User must be aware of the channel numbers of the AMX IR code to use this command. This gives the user access to features that may not be directly supported by the module. For more information, see the " Adding Functions to Modules " section below. Note: Do not send any terminating characters, the module will append them. <channel> : channel number to send to unit ``PASSTHRU-1

<p>?PROPERTY-<key></p>	<p>Get the module properties. If a property is not set, the module will return an empty string.</p> <p><key>: MODULE-NAME (Name of this module)</p> <p>MODULE-VERSION (Version number of this module. The version is in the format: major.minor.micro)</p> <p>DEVICE-MAKE (The manufacturer name)</p> <p>DEVICE-MODEL (The specific model number of the device being configured.)</p> <p>DEVICE-CATEGORY (The control method used by the device)</p> <p>DEVICE-REVISION (The firmware version installed within the device being used.)</p> <p>DEVICE-CHANNELS (The number of available device channels)</p> <p>DEVICE-LEVELS (The number of available device levels)</p> <p>UI-TEMPLATE (Specifies the type of UI required for a given module.)</p> <p>DEVICE-GUID (This is an abbreviation for Device Global Unique Identification.)</p> <p>MODULE-CONTACTADDRESS(The contact address of Control Life Pty Ltd)</p> <p>MODULE-DESCRIPTION (This is a short description of this module.)</p> <p>MODULE-DOCURL (This is a URL used to document this module.)</p> <p>MODULE-UPDATELOCATION (If the module is ever updated at some later date, this is the location that should be used (if present) to retrieve the updated tko files.)</p> <p>MODULE-COPYRIGHT (The copyright information for this module.)</p> <p>MODULE-VENDOR (description of the vendor: Control Life Pty Ltd)</p> <p>DEVICE-TYPE (Type of Device: LightSystem)</p> <p>SUPPORT-DISCRETE-POWER (does it support discrete power)</p> <p>RECORD-CAPABLE (can it record?)</p> <p>IRONTIME (Pulse Time) IROFFTIME (Interval between two pulses)</p> <p>Example: ?PROPERTY-</p>
------------------------------	---

PROPERTY-<key>,<value>	<p>Sets the module property. You must REINITialize the module for the new settings to take affect.</p> <p><key>:</p> <p>DEVICE-MAKE (The manufacturer name)</p> <p>DEVICE-MODEL (The specific model number of the device being configured.)</p> <p>DEVICE-REVISION (Update the firmware version of the device)</p> <p><value>: xxx.xxx.xxx</p> <p>SUPPORT-DISCRETE-POWER (does it support discrete power)</p> <p><value> 1 = yes, 0 = no</p> <p>RECORD-CAPABLE (can it record?)</p> <p><value> 1 = yes, 0 = no</p> <p>IRONTIME (Pulse Time)</p> <p><value> 1-100 (in 1/10 sec)</p> <p>IROFFTIME (Interval between two pulses)</p> <p><value> 1-100 (in 1/10 sec)</p> <p>Example:</p> <p>PROPERTY- DEVICE-REVISION,4.05.00</p>
IOLINK-<dps>,<channel>	<p>where <dps> is the DPS in string form, i.e. 17:1:0, and <channel> is the channel on the IO device to which the power sensor is connected.</p>
?VERSION	<p>Query for the current version number of the module.</p> <p>?VERSION</p>

Table 3 – Send Command Definitions

Command Feedback

The COMM module provides feedback to the User Interface module for disc device changes via command events. The commands supported are listed below.

PLEASE NOTE: Feedback is only provided when there is a state change. If no state change resulted from the command sent in, then no feedback will be returned.

Command	Description
DEBUG-<value>	Returns the state of debugging messages in the UI module and the Comm. module. <value> : 1 = set only error messages on 2 = set error and warning messages on 3 = set error, warning and info messages on 4 = set all messages on DEBUG-1
DISCCAPACITY-<discs>	Reports the number of disc slots that the device supports. <discs> : 1 DISCCAPACITY-1
PROPERTY-<key> ,<value>	Returns the module properties. If a property is not set, the module will return an empty string. All property keys are case-sensitive. Example: PROPERTY-MODULE-VENDOR,Control Life Pty Ltd
VERSION-<version>	Reports the version number of the module. <version> : x.y.z = module version number VERSION-1.0.0

Table 4 - Command Feedback Definitions

Programming Notes

- At startup and when the 'REINIT' command is used, all values are set to default values. If these values are not initialized during the startup or re-initialization sequence, then they remain set to their default values and may be returned if a query/get command is sent.

Adding Functions to Modules

Commands to the device

This module supplies a mechanism to allow additional device features to be added to software using the module. This is the 'PASSTHRU-' command, which allows IR code to be passed through the module. The device-specific protocol must be known in order to use this feature.

```
send_command vdvDevice, "PASSTHRU-', $01"
```