dbx: SC 32/64 Output Router

This module provides functionality for an Output Router.

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GENERAL INFORMATION	
SIMPLWINDOWS NAME:	dbx SC32-64 Output Router.umc
CATEGORY:	Device Interface
VERSION:	v1.0
SUMMARY:	This module provides functionality for a single Output Router. This module MUST connect to a "dbx SC32-64 NODE.umc". **DO NOT CONNECT DIRECTLY TO A COMM PORT.**
GENERAL NOTES:	**This module was written by the Manufacturer.** This module is meant for a single dbx SC32/64 Output Router. Use a different instance for each SC 32/64 Output Router being controlled. The user must select the VD and ObjectID$via the parameter drop-down list. This address information can be obtained by right-clicking on the desired object and selecting "Copy HiQnet Information".
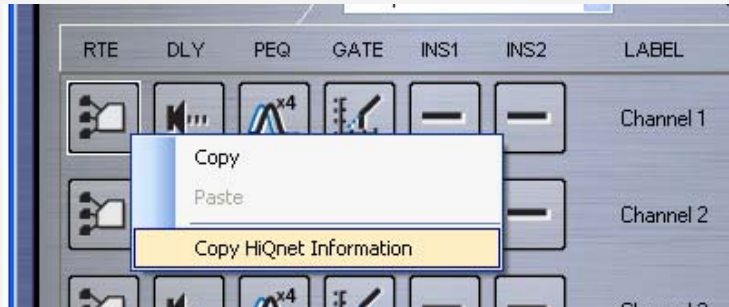
Name(type of object): Router
Node: (Hex):0x01, (Decimal):1
VD: (Hex):0x01, (Decimal):1
ObjectID: (Hex):0x010100, (Decimal):1.1.0

Extensive debug capabilities have been built into this module. To access additional information concerning errors, messages types/values, module status, and basic trouble shooting information the programmer can uncomment the #DEFINE statements in the Simpl+ code. NOTE: debugging info takes processor resources. Comment out the #DEFINE for final release to ensure optimum performance.

The SC is user configurable and thus the programmer can determine how much traffic and how much control is exchanged between the Crestron and the SC by using external sub-modules such as "dbx SC32-64 Output Router.umc" available in the module download package. To utilize additional modules the programmer must expand the "From_NODE_Module" and "To_NODE_Module" signals. ONLY 1 sub-module can be tied to each signal on the NODE. See sample image on last page of this document.

CONTROL:		
Device_Ready	D	After communication has been established to the SC, the NODE will assert this signal allowing all sub-modules to send and receive data from the SC. This signal must be connected to the NODE module's "Device_Ready" signal output for proper functionality. No messages will be sent from this module unless this signal is HIGH.
Subscribe	D	This signal is intended to be HIGH for all typical system usages. It must be HIGH to receive true feedback from the SC. If it is low, the feedback is simulated. When this signal transitions from low to high 'subscribe' messages will be sent to the SC which will allow automatic updates to be received (no polling). When this signal transitions from high to low 'unsubscribe' messages will be sent to the SC and automatic updates will not be received any longer. It is strongly suggested that the programmer connect this input to the same signal as defined on the DEVICE_READY input. This will ensure that this module stays in sync during connection interruptions. See last page of this document for proper connections.
Discrete_Volume_Enable	D	This signal is intended to be LOW for most applications. If the "Subscribe" line is high the Crestron module will be kept in sync automatically. If this signal is HIGH a "GET" message will follow all volume "SET" commands. This is only for user's who want a full response for every single volume command. NOTE: This can cause high traffic/processor loads.
Mute_ON	D	Pulsing this signal input will send a "MUTE" message to the SC, and the internal toggle variable will be set HIGH.
Mute_OFF	D	Pulsing this signal input will send an "UNMUTE" message to the SC, and the internal toggle variable will be set LOW.
Mute_Toggle	D	Pulsing this signal input will send alternate between "MUTE" and "UNMUTE" messages.
Source	A	Will select the source of the router. This input only takes Direct Route numbers. This route value can be obtained by right-clicking on the router and selecting "Get Route Number" in HiQnet System Architect. HINT: The lowest possible value for an input router will be 516d for this signal. Use an Analog Init to drive this symbol. See example program for sample usage.
ENUM_Source	A	Enumerated Source Input. Will select the source of the router by taking enumerated inputs 0-64d and converting them to Direct Route numbers internally. The feedback will still be a Direct Route number. CAUTION: The available routes are affected by the card configuration loaded in the SC. It is possible to connect to ununable routes using this input since this input simply scrolls through all possible Direct Route numbers.

Volume_In	A	Accepts values of 0-65535 so that this signal input can be connected directly to a Analog_Ramp. This module is designed so that the SAME SIGNAL name that is defined on the Volume_In input can be defined on the Volume_Graph in order to avoid logic buffering when using an Analog_Ramp.
From_NODE_Module	S	Connect the "To_IO_Module" signal from the dbx NODE module to this input. Data received from the device will be sent to this module via the NODE. DO NOT CONNECT DIRECTLY TO A COMM PORT. **IMPORTANT**: Only 1 module may be connected to each "From_NODE_Module" input. If more than 1 module is connected the modules WILL NOT FUNCTION properly. See example screenshot on the last page of this document for proper connection.

FEEDBACK:

Mute_Is_On	D	Will update the current state of the Mute parameter. If "subscribe" is HIGH the feedback will be true. If "subscribe" is LOW the feedback will be pseudo.
Source_Selected	A	Will reflect the current state of the Source input of the router. If "subscribe" is HIGH the feedback will be true. If "subscribe" is LOW the feedback will be pseudo. Normally this signal is sent to an Analog Equate for true feedback purposes. See example program.
Volume_Graph	A	Will reflect the current state of the Volume input of the router. This module is designed so that the SAME SIGNAL name that is defined on the "Volume_In" input can be defined on the "Volume_Graph" in order to avoid logic buffering when using an Analog_Ramp. If "Discrete_Volume_Enable" is HIGH this signal name must be different from "Volume".
To_NODE_Module	S	Connect to the "From_IO_Module" signal on the dbx NODE module. DO NOT CONNECT DIRECTLY TO A COMM PORT. **IMPORTANT**: Only 1 module may be connected to each "To_NODE_Module" output. If more than 1 module is connected the modules WILL NOT FUNCTION properly. See example screenshot on the last page of this document for proper connection.

Parameters:

VD		The user must select the VD and ObjectID via the parameter drop-down list. This address information can be obtained by right-clicking on the desired object and selecting "Copy HiQnet Information". See GENERAL NOTES at top of this document for more information. NOTE: A valid correlation must be met between the selected VD and ObjectID$parameters. If this is not met this module **will not function**. A constant "Configuration Mismatch" Error will be displayed in the Crestron console and Simpl Debugger until this condition has been resolved. An SC processor need not be present for this condition to be detected.

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ObjectID	The user must select the VD and ObjectID via the parameter drop-down list. This address information can be obtained by right-clicking on the desired object and selecting "Copy HiQnet Information". See GENERAL NOTES at top of this document for more information. NOTE: A valid correlation must be met between the selected VD and ObjectID parameters. If this is not met this module **will not function**. A constant "Configuration Mismatch" Error will be displayed in the Crestron console and Simpl Debugger until this condition has been resolved. An SC processor need not be present for this condition to be detected.

Sample Screen shot of NODE module and Input Router sub-module defined properly.

OPS USED FOR TESTING:	Firmware: PRO2 4.001.1012
COMPILER USED FOR TESTING:	V2.12.18; Simpl+ 3.03.11
SAMPLE PROGRAM:	dbx SC32-64 Demo Program.smw and dbx SC32-64 TPMC-12 Demo Panel.vtp
REVISION HISTORY:	V. 1.0 – Creation by Manufacturer (S.E.)