CRESTRON INTEGRATION MODULES

INTRODUCTION

This document provides the starting point for integrating the UC-DMX-200 Ethernet to DMX hardware interface with a Crestron control system.

While the protocol to control the UC-DMX-200 is simple (and available upon request) we have developed a number of modules which encapsulate most of the functions that you would wish to trigger from the control system, such as setting discrete DMX channel values, filling ranges of DMX channel values, and basic control of the pattern generators to provide colour changing effects.

Please refer to the included example SIMPL program for a working example of each module.

CONNECTION TO THE UC-DMX-200 HARDWARE

First of all, the Crestron control system will need to know how to communicate with the UC-DMX-200 hardware. This can be accomplished via either UDP or TCP clients from the Crestron program, but we suggest you use the UDP/IP Communications in preference to the TCP/IP Client as performance of rapidly changing channel values will be significantly better using UDP.

The UDP control channel is one-way – i.e. it will never reply with any response, so the one situation where a TCP client is required is the UC-DMX Channel Query module, if this is used.

Both UDP/IP and TCP/IP use a default port of 13255, though this can be changed via the Universal Configuration Tool.

PATTERN GENERATOR SETUP

The modules provided do not offer and configuration of the pattern generators other than pattern recall and simple control, such as start/stop.

Pattern generators should be configured using the Universal Configuration Tool (which can be downloaded from the UC-DMX-200 product page at http://shop.ultamation.com)

All functions *can* be implemented via the standard protocol, so if you have any special requirements, we would be happy to discuss any enhancements you require, though there may be a charge for these.

MODULE DETAILS

UC-DMX RGB Fixture Control

This module provides simple control of a three channel (RGB) DMX lighting fixture. Having fixed inputs and outputs, this means the module is fairly rigid and will only suit this specific scenario; it also provides the simplest integration path for the programmer.

The module requires a base channel number (in the range 1 to 510) which determines which three DMX channels in the range 1-3 to 510-512 are to be controlled.
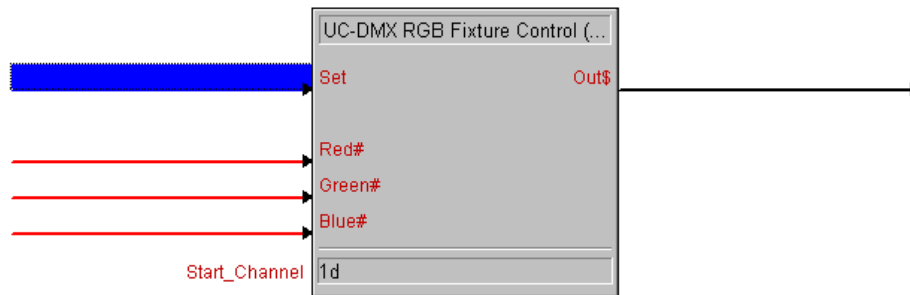
Three analog values then define the three channel values. The input range takes a full 16-bit unsigned value (0-65535) and this is automatically scaled to the normal DMX range of 0-255 for transmission.

The 'Set' digital signal triggers a packet to the UC-DMX-200 which carries the values of the three channels.

The output serial signal ('Out$') should be connected to the TX$ of either the UDP or TCP client object.

UC-DMX Dynamic Fixture Control

This module is similar to the RGB Fixture Control module, except that it provides control of a variable number of contiguous channels. The channel input values can be expanded to a maximum of 100 channels (a limitation of the maximum packet size in SIMPL).

This module can therefore control a single channel, or a range of channels on, say, an addressable RGB LED tape.

Again, a parameter defines the starting DMX channel, and the 'Send' digital triggers the generation of the packet.
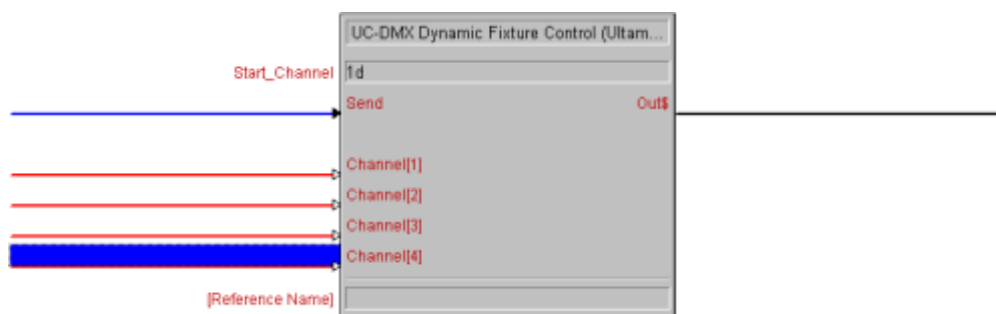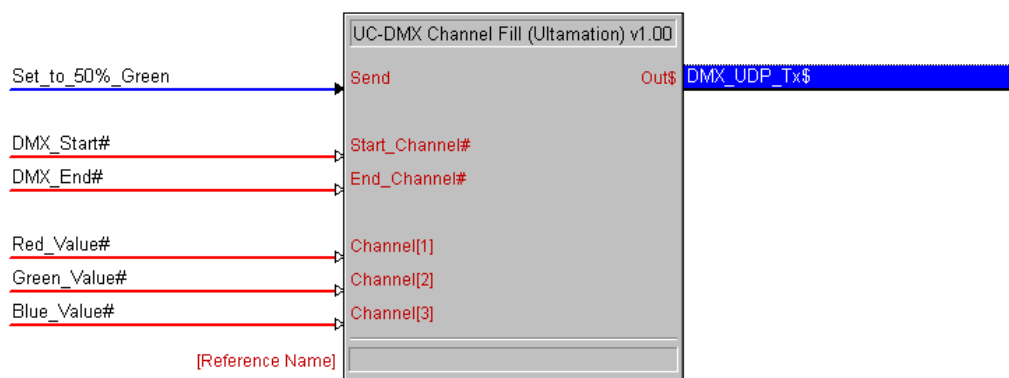
UC-DMX Channel Fill

For situations where a single value, or range of values, can be repeated throughout a range of DMX channels, this module exposes the DMX channel fill command functionality.

For example, if we have 10 RGB light fixtures on adjacent channels from 31 through 60 and want to set them all to 50% green, we would set DMX_Start# to 31d, DMX_End# to 60d, Red & Blue_Value# to 0d and Green_Value# to 50%, and trigger 'Send'

The DMX channels will then be filled as follows:

Channel	31	32	33	34	35	36	…	59	60
Value	0	50%	0	0	50%	0	…	50%	0

First repeat of values

UC-DMX Channel Query

The Channel Query module is the only module that REQUIRES a TCP connection. This module provides a way to query the DMX controller for the current values of the DMX channels – for example, if you wish to provide feedback of a pattern.
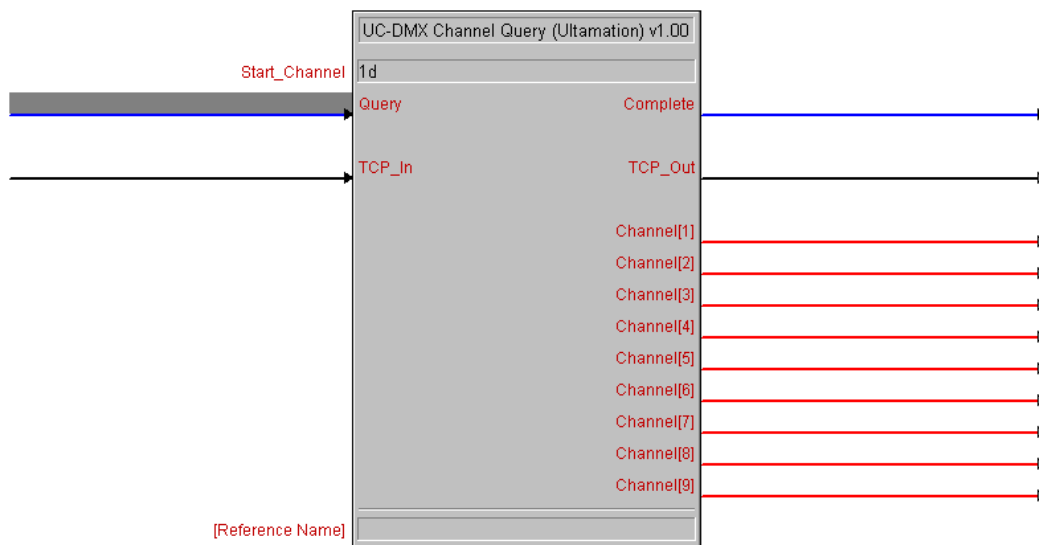
UC-DMX Pattern Control

Unlike the other modules, this module manipulates a pattern generator, rather than discrete channels.

Each of the 8 independent pattern generators runs a stored series of colour values across a range of DMX channels. The UC-DMX-200 also has a non-volatile store for 255 patterns which can be set up and recalled into any of the pattern generators to achieve colour changing effects and smooth fades.
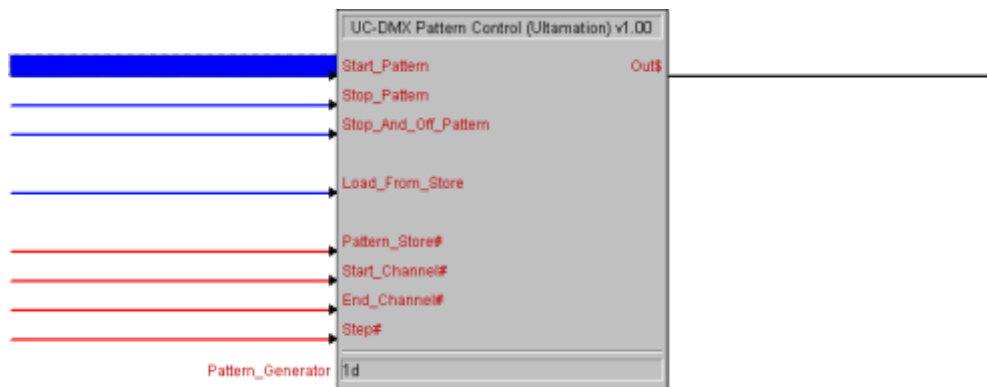
A pattern is pulled out of the store and into the generator using the Pattern_Store# value (1-255) and asserting the Load_From_Store signal. Prior to loading, the Start, End channels and Step can be overridden so that a single pattern definition can be applied to various channels across the DMX universe.

Start and Stop will instruct the pattern generator to run, or stop, while 'Stop and Off Pattern' will stop the pattern generator, and also set all of the DMX channels to 0.