DyNet Reference

Introduction

DyNet Network layers

- Physical layer - Signalling Schemes
  RS485
  RS232

- Data Link layer - Packet Schemes
  DyNet 1
  DyNet 2
  DyNet Text

- Transport layer - Addressing Schemes
  Logical
  Physical

DyNet Message Protocol
All DyNet messages detailed in this document are fixed length 8 byte packets. These messages can be identified by their sync byte as detailed below.

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Sync Byte			OpCode				Checksum

In this document all numbers are expressed in hexadecimal.

Sync Byte
All DyNET messages are prefixed with a Sync Byte*. This byte is used to mark the start of a message as well as indicating the addressing scheme used.*

1C	Logical Addressing Scheme	8 Byte packet
5C	Physical Addressing Scheme	8 Byte packet
6C	Not detailed in this document	8 Byte packet

Checksum
The DyNET Checksum is equal to the Negative 8 bit 2's complement sum of bytes 0-6.

Eg. DyNET Preset Message 1C 01 20 00 00 00 FF C4

Sum of bytes 0-6	=	13C
Invert the Sum	=	EC3
Add 1	=	EC4
AND with FF	=	**C4**

DyNet Command Categories

Logical Level Commands

Record Current Preset

The record current preset message causes all load controllers to record the current preset number for all channels configured to the area, indicated in the message. The preset can then be recalled at any time. Once the record current preset message is used the previously recorded preset number is overwritten in the controller. The default recorded preset is preset 1. xe "Save Current Preset"

Structure:

Byte 0	0x1c
Byte 1	Area
Byte 2	0x00
Byte 3	**0x66**
Byte 4	0x00
Byte 5	0x00
Byte 6	Join (default is 0xff)
Byte 7	Checksum

Example Message:

Save Current Preset in Area 6
 [1C] [06] [00] [66] [00] [00] [FF] [79]

Recall Preset

The recall preset message will cause all channels assigned to the area identified in the area byte to go to the recorded preset level. If a preset has not been recorded previously the area will go to preset 1.

Structure:xe "Restore Saved Preset"

Byte 0	0x1c
Byte 1	Area
Byte 2	0x00
Byte 3	**0x67**
Byte 4	0x00
Byte 5	*Fade*
Byte 6	Join (default is 0xff)
Byte 7	Checksum

Parameters:

Fade

The fade uses Byte 5 to provide the facility for any fade between instant and 25.5 seconds in 0.1-second increments.

Settings:

Fade

Byte 5	Fade
0x14	2 seconds
0x64	10 seconds

Example Message:

Restore Saved Preset in Area 33 over 10 seconds

[1C] [21] [00] [67] [00] [64] [FF] [F9]

Reset Preset

If any channel levels in an area are changed using a message other than a preset message the load controllers still remember the last preset that area was in. It is then possible to return an area to its last preset state using the 'reset preset' message. This makes it possible for the end user to make mood changes to a lighting scene using channel level messages etc. but still be able to recall the last preset scene when required.

Structure:

Byte 0   0x1c

Byte 1   Area

Byte 2   *Fade - low (default of 0x64, equal to 2 seconds)*

Byte 3   **0x0f**

Byte 4   *Fade - high (default of 0x00, when Byte 2 is 0x64 produces a 2 second fade)*

Byte 5   0x00

Byte 6   Join (default is 0xff)

Byte 7   Checksum

Parameters:

Fade

The fade uses Byte 4 and Byte 5 to provide the facility for any fade between instant and 21 minutes 50 seconds in 0.02-second increments.

Settings:

Fade

Fade-high	Fade-low	Actual Fade Time
0x00	0x64	2 seconds
0x0b	0xb8	1 minute
0x75	0x30	10 minutes

Example Message:

Reset Preset in Area 10 over 5 seconds
`[1C] [0A] [FA] [0F] [00] [00] [FF] [D2]`

Preset Offset

The preset offset message causes the load controllers to change their offset value. This is a value applied as an offset to any received preset message. The received preset and the offset value are added together and the load controller adjusts the appropriate channels to the resulting preset number. By default the preset offset is 0 and any received preset is a true preset.

This is used in areas that require different lighting levels at different times of the day and night. These messages are generally transmitted to the network automatically by a time controlled device.

Note: If preset offset is used on a project, documentation must state that it is being used and in what areas it is applied to. This is to assist in diagnosing suspected system faults at a later date.

 Example: Area 4, Preset 1 is received at a load controller.

The load controller had previously received an area 4 preset offset of 3.

The load controller will send the channels it controls in area 4 to preset 4.

Structure:

Byte 0	0x1c
Byte 1	Area
Byte 2	*Offset (MSB always set)*
Byte 3	**0x64**
Byte 4	0x00
Byte 5	0x00
Byte 6	Join (default is 0xff)
Byte 7	Checksum

Parameters:

Offset

The number of presets the area is offset by.

Settings:

Offset

The MSB for the offset is always set. E.g. 0x8a is an offset of 10. To clear the preset offset for an area send the offset message with an offset of 0x80.

Example Message:

Preset Offset of 15 in Area 44
```
[1C] [2C] [8F] [64] [00] [00] [FF] [C6]
```

Preset Status Request and Reply

It is possible to interrogate the DyNet network to find out the current state of an area or even a specific channel within an area. With these messages it is possible to have live feedback to a touch screen that allows a freshly opened page to display the current preset for an area or the current levels of any channel within an area.

If an area has received a preset offset message it will display the true preset that area is in. I.e. if area 6 is in an offset state of 3 and it is sent a preset 5 message, the reply to a current preset request message to area 6 will give a preset of 8 (see Preset Offset).

Structure:
Current Preset Request xe "Request Preset"

Byte 0	0x1c
Byte 1	Area
Byte 2	0x00
Byte 3	**0x63**
Byte 4	0x00
Byte 5	0x00
Byte 6	Join (default is 0xff)
Byte 7	Checksum

Current Preset Reply (response to a current preset request)xe "Report Preset"

Byte 0	0x1c
Byte 1	Area
Byte 2	*Preset Number (0 origin)*
Byte 3	**0x62**
Byte 4	0x00
Byte 5	0x00
Byte 6	Join (default is 0xff)
Byte 7	Checksum

Parameters:
Preset Number

The Preset uses a zero origin. E.g. 0x00 indicates preset 1, 0x01 indicates preset 2 etc.

Example Messages:

Request Current Preset of Area 4
[1C] [04] [00] [63] [00] [00] [FF] [7E]

Area 4 is currently in Preset 6
[1C] [04] [05] [62] [00] [00] [FF] [7A]

Logical Preset Commands

Logical User Preference Command

Logical Opcode 0x48 can be used to set various preferences for user interface devices in a DyNET Network

Structure:

Byte 0	0x1c
Byte 1	Area
Byte 2	preference
Byte 3	**0x48**
Byte 4	Level
Byte 5	FadeTime
Byte 6	Join (default is 0xff)
Byte 7	Checksum

Parameters:

preference

0x00 = Reserved
0x01 = Indicator LED Brightness
0x02 = Backlight LED Brightness
0x03 = LCD Brightness
0x04 = LCD Contrast
0x05 = Sounder Volume
0x06 - 0xFF = Reserved

Level

01 = full
0xff = off

FadeTime
8 bit Fade Time in 20mS increments. Example:
01 = 0.02 seconds
FF = 5.1 seconds.

Example Message:

Set UPan 9 Backlight LED's to full in area 3
[1C] [03] [02] [48] [01] [20] [FF] [77]

Supported in
UPan 9

Task Control

Start Task
Stop Task
Pause Task

Event Control

Enable
Disable
Trigger

DyNet Area Linking Sensitivities

Channel level messages will always pass area linking tests.

Opcode 71 will pass if you clear byte 0x76 in EEPROM

For 410CE dimmers with 6800 processor, you have to clear byte 0x82 to allow either message to pass.