Vintage Mainframe Series

User Guide

Nov/2018

Granby Games

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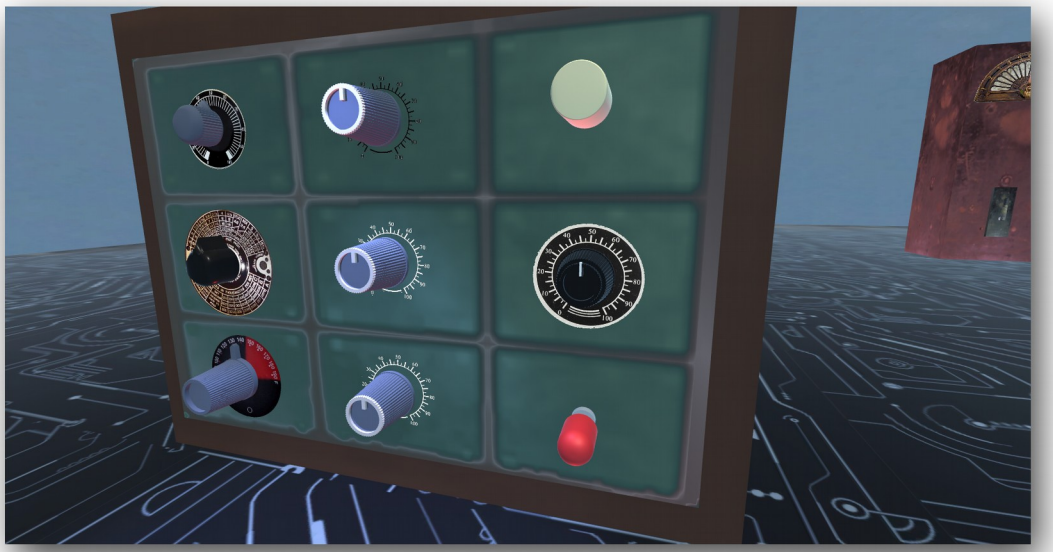
Introduction

Granby Games logic prop prefabs (Logic Blox) can be used to create, debug and design simple to complex virtual electronic circuits, control panels and or game play controls. Logic Blox are placed in game and can be connected together in order to run other logic props, sounds, animations and game objects. Pre-attached script file(s) manage behavioral logic, animations and connections to other props.

Vintage Mainframe prop series includes switches, dials, lamps, tubes and relays from early 1940's to late 1950's mainframe computers. Switches and controls are fully animated with options for dial faces and color combinations.



Contained in this user guide are detailed descriptions, examples and operational settings. Logic Blox packages including Vintage Mainframe series can be downloaded from the Unity asset store. Note: Mainframe Series includes Logic Blox primitives assets

Vintage Mainframe component prefabs

Vintage Mainframe prefabs contain meshes, materials and Logic Blox Script(s) pre-setup for each component type. Place props in game scene and use inspector to establish pin connections to other props. Clicking on pins and or buttons changes prop logic states which in turn drives logic flow to other connected props.

In addition, prefabs have optional user changeable settings for button colors, led emissions, clocking, sound, animation and game object control. Note: Refer to Logic Blox Primitives User Guide for further details.

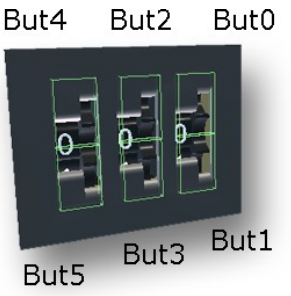
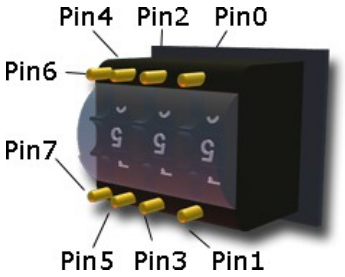
Vintage Mainframe circuit types are setup with different classes that represent common pin configurations:

Circuit Classes

1. **Gate** - One input, one output. Includes chip type: **Switch**, **Lamp** and standard **Gate**
2. **TriSwitch** – Three inputs, three outputs. Includes chip type: **TriSwitch** 3 way switch
3. **Axis** - Two inputs. two outputs. Includes chip type: **UpDn** and **Dial** controls
4. **ThumbWheel** – Eight inputs, two outputs. Includes chip type: **ThumbWheel** counter
5. **Display** – Three inputs, 2 outputs. Includes chip type: **Nixi,** and **Dexatron** tubes
6. **Relay** – 2 inputs, 2 outputs. Included chip type: **Relay** mechanical relay

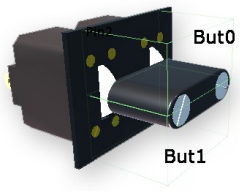
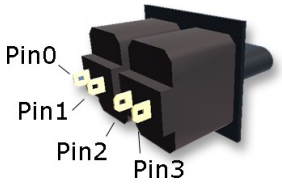
Device configurations

Class: ThumbWheel, **Type:** ThumbWheel – 3 digit wheel counter 3 x (0 -9) with store and send.

	
But0 - Digit one up But1 – Digit one down But2 – Digit two up But3 – Digit two down But4 – Digit three up But5 – Digit three down	Pin0 - Digit one up Pin1 – Digit one down Pin2 – Digit two up Pin3 – Digit two down Pin4 – Digit three up Pin5 – Digit three down Pin6 – Data Out Pin7 – Data Send

- Activating Send Data(pin 7) will trigger x pulses to Data Out(pin6) (x=sum of all digits).
- Counter will count backwards until count reaches 0.

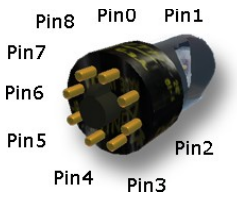
Class: TriSwitch, **Type:** TriSwitch - Three position switch – up/middle/down

	
But0 – Flip up But1 – Flip Down	Pin0 – Flip up Pin1 – Flip Down Pin2 – Up state Pin3 – Down state

- Switch has 3 positions up, middle, down. Middle position is off

Device Configurations - Continued

Class: Display, **Type:** Nixi – 10 digit display 0-9 with reverse, store and dump



Pin0 – Count Pin1 – Direction down Pin2 – Data state Pin3 – Reset Pin4 – Carry out	Pin5 – nc Pin6 – nc Pin7 – nc Pin8 - nc

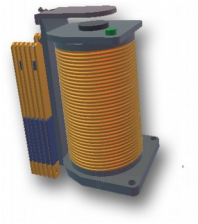
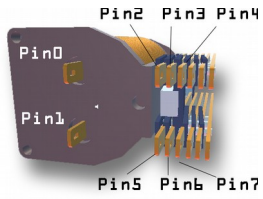
- Activating pin 1 reverses count direction.
- Carry out pin pulses when count transitions from 9 to 0.
- Activating reset pin resets digit to 0.

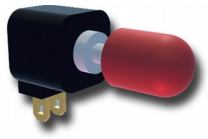
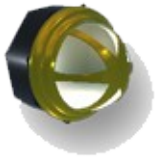
Class: Display, **Type:** Dekatron – 10 decimal counter with carry and store.

Pin0 – Advance Pin1 – Direction down Pin2 – Data state Pin3 – Reset Pin4 – Carry out	Pin5 – nc Pin6 – nc Pin7 – nc Pin8 - nc

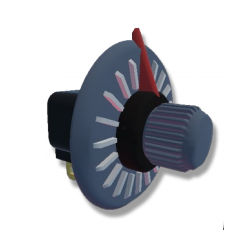
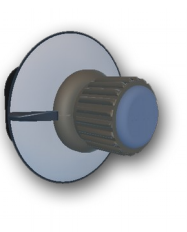
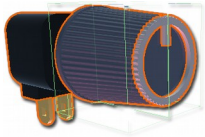
- Activating pin 1 reverses count direction.
- Carry out pin pulses when count transitions from 9 to 0
- Activating reset pin resets to Led0 on

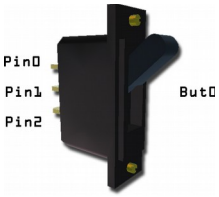
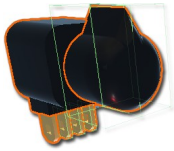
Device Configurations - Continued

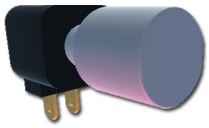
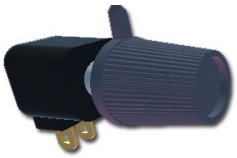
Class: Relay **Type:** Relay– SPST mechanical relay with selectable common	
 	
Pin0 – Relay On Pin1 – Relay State Pin2 – NO-1 Pin3 – Com-1 Pin4 – NC-1	Pin5 – NO-2* Pin6 – Com-2* Pin7 – NC-2*
* DPDT upgrade coming soon	

Gate (push button)	Gate (Lamp)	Gate (Lamp)
		
Pin0 – Toggle on/off Pin1 – Switch state But0 – Press on/off	Pin0 – Toggle on/off Pin1 – Lamp state	Pin0 – Toggle on/off Pin1 – Lamp state
Can be momentary and or clock		

Device Configurations - Continued

Axis(Dial)	Axis(Dial)	Gate (Dial)
		
But0 – Turn left But1 – Turn right Pin0 – Turn Left Pin1 – Turn right Pin2 – Increase value Pin3 – Decrease value	But0 – Turn left But1 – Turn right Pin0 – Turn Left Pin1 – Turn right Pin2 – Increase value Pin3 – Decrease value	But0 – Turn left But1 – Turn right Pin0 – Turn Left Pin1 – Turn right
Use in conjunction with sub functions to control prop volume and or clock rate	Use in conjunction with sub functions to control prop volume and or clock rate	Use in conjunction with sub functions to control prop volume and or clock rate

Gate (Breaker)	Gate (Switch)	Gate (Dial)
		
But0 – Flip on/off Pin0 – Flip on/off Pin1 – Switch state	But0 – Toggle on/off Pin0 – Toggle on/off Pin1 – Switch state	But0 – Turn left But1 – Turn right Pin0 – Turn Left Pin1 – Turn right Pin2 – Increase value Pin3 – Decrease value
On off toggle effect	Multiple button labels to choose from including: Abort, Clear, Dump, Reset, Shift, Start, Stop	Use in conjunction with sub functions to control prop volume and or clock rate

Gate (Switch)	Gate (Switch)	Gate (Dial)
		
But0 – Flip on/off Pin0 – Flip on/off Pin1 – Switch state	But0 – Turn left But1 – Turn right Pin0 – Turn Left Pin1 – Turn right	But0 – Turn left But1 – Turn right Pin0 – Turn Left Pin1 – Turn right
On off toggle effect	Use in conjunction with sub functions to control prop volume and or clock rate	Use in conjunction with sub functions to control prop volume and or clock rate

Dial Face Options

Inspector Settings

Logic Blox components, behaviors, links and colors are managed using the Unity Inspector. Each Logic Blox has the following components:

UniLogicChip.cs

- Determine gate logic type, links, clock and button settings.

UniLogicEffects.cs

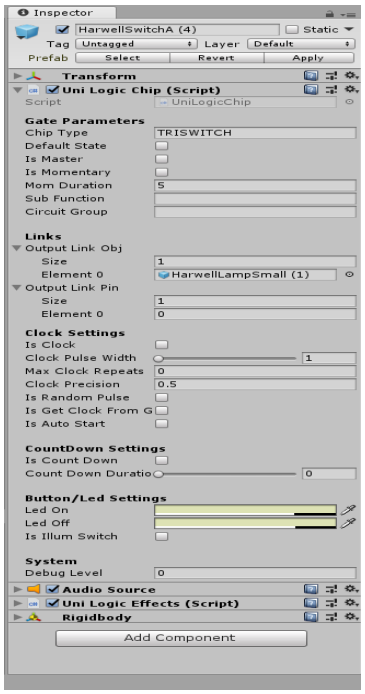
- Determine click sounds, activation sounds and object enable

RigidBody

- Passes collider events from child components

Audio Source

- Audio handler for prop sounds



UnilogicChip.cs script details

Gate Parameters

1. Chip Type – non cased string value. Determines logic gate behaviors
(AND, NAND, OR, NOR, NOT, BUFFER, SWITCH, LAMP, UPDN, TRISWITCH, THUMBWHEEL, RELAY, DEKATRON, NIXI)

2. Default State – default state at power up(program start)

3. IsMaster – Set to true if prop is first counting or clocking prop in series of linked counting props.

4. IsMomentary – Output will remain on for Mom Duration time period

5. Mom Duration – Time period before output is turn off. Based multiple of Fixed update interval

6. Sub Function – Non cased string value. Advanced command to send to other props and or global action commands

Sub Function Command list:

a. SHOWLINKS – Display links between objects as line renders

b. DEBUG – Toggle debug logging messages in inspectors output screen

c. RESETGLOBAL – Send reset command to all props

d. RESETCIRCUIT – Send reset command to all props with same Circuit Group name

e. DISABLELEDS – Enable/disable updates to props indicator leds and lamps.

f. CRASH – Send reset command to all props and then drop to floor. (disables ridgidbody Kinematic)

6. Circuit Group – Prop groups for sending Sub Function.

Links

1. Output Link Obj – Array of object props to link output to
   - Drop other logic props here

2. Output Link Pin – Array of object prop pins to activate
   - Index must match with Link Object index to link objects pin
   - Pin 0 is always the first input

Clock Settings

1. Is Clock – Prop will act as a repeating clocking

2. Clock Pulse Width – Duration of clocks pulse

3. Max Clock Repeats – Clock will stop when this value is reached.

4. Clock Precision – Incremental value used by linked dials that change clocks rate

5. Is Random Pulse – Clock pulse width will be randomized

6. Is Get From Group – Change clock rate when master changes

7. Is Auto Start – Clock will start at power up (program start)

CountDown Settings

1. IsCountDown – Props clock will stop after Count Down Duration is reached

2. Count Down Duration – Number of clock cycles that occur before clock stops.

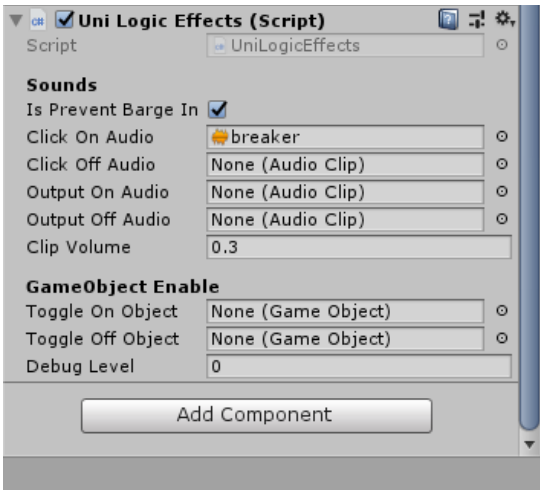
Button/Led Settings

1. Led On – Color of props button/led component(s) when output gate is on

2. Led off – Color of props button/led components(s) when output gate is off.

3. is Illum Switch – Enables button/led material Emissions

UniLogicEffects.cs Inspector settings



Sounds

1. Is Prevent Barge In – Prevents additional sound clips from playing until current clip has completed.

2. Click On Audio – Audio clip played when input is clicked

3. Click Off Audio – Audio clip played when input is toggled off

4. Output On Audio – Audio clip played when gate output is switched On

5. Output Off Audio – Audio clip played when gate output is switched Off

GameObject Enable

1. Toggle On Object – Enables game object when gate output is switched On

2. Toggle Off Object – Enables game object when gate output is switched Off