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Light EFX-16 application note

Using the LocoNet® Fast Clock event triggers

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Overview

One of the powerful capabilities of our ***Light EFX-16*** board is time-based triggers. Conceptually this is quite simple – activate/deactivate light effect outputs at specific times during a 24-hour period. Ideally this is accomplished using LCC and its support for a fast clock (e.g. our LCC Fast Clock products). With LCC you use JMRI PanelPro to configure the ***Light EFX-16*** board including any time-based triggers using an LCC fast clock as the time source. This is VERY easy to do and is the most effective and simple method to use. What if you don't use LCC but have one or more of our LocoNet® Fast Clock (LNFC) products? You're in luck! The LNFC, starting with code/firmware version 4.0, supports something we call Event Triggers. In short, each LNFC can be configured for three separate time-based on/off triggers. The triggers are DCC Accessory Decoder commands (previously referred to as switch/turnout commands) which are originated by the LNFC via LocoNet® and translated by a Digitrax command station into DCC Accessory Decoder commands (thrown or closed command to a specified address). Though these event triggers were originally targeted at accessory decoders such as the old DS54, they will work with any compliant DCC Accessory Decoder device. Guess what? The ***Light EFX-16*** supports the DCC Accessory Decoder function for each of its outputs! What engineering foresight and genius we had! OK, it's just dumb luck!

Learn by example

The best way to explain how to do this is by example. Let's start with one ***Light EFX-16*** output and one LNFC event trigger. The table below is a convenient way to document what we want to accomplish. You can print out this page and fill in your own use cases.

Light EFX-16 **output(s)**	**DCC Accessory Address**	**LNFC location**	**Event Trigger #**	**Start time**	**End time**

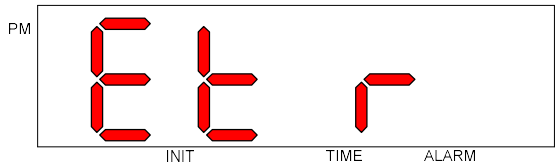
We're going to use light output #8 and activate/deactivate it via DCC Accessory Address 1050. We have an LNFC located at our main yard. We'll use Event Trigger #1 on this LNFC. The light output is connected to a yard light which we want to turn on (activate) at 7:00pm and turn off (deactivate) at 6:30am. The entries in our table would look like this:

Light EFX-16 **output(s)**	**DCC Accessory Address**	**LNFC location**	**Event Trigger #**	**Start time**	**End time**
8	1050	Main yard	1	7:00pm	6:30am

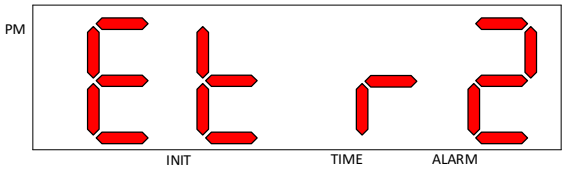
The first step is to configure the ***Light EFX-16*** board. We won't repeat the steps here on how to use DCC POM to configure the board; please refer to the ***Light EFX-16*** User's Guide for those details. Here is a summary of the specific CVs and values you'll need to program:

- CV 148 (effect selection): your choice!
- CV 128 (brightness): your choice!
- CV 168 (input type): 1
- CV 188 (accessory address number thousands-hundreds): 10 (decimal)
- CV 208 (accessory address number tens-ones): 50 (decimal)

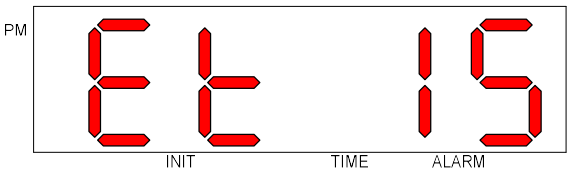
The next step is to configure the Event Trigger on the chosen LNFC. First press the **MODE** button one time then press the **+/HRS** button 3 times. The LNFC display should now show:



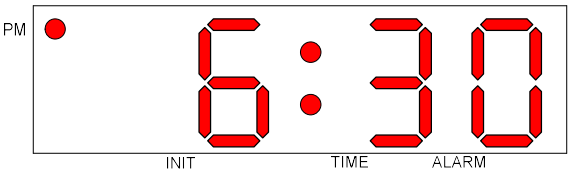
Next press the **SEL** button and notice the number to the right of "Etr". This is an encoded value of the Event Triggers which are enabled. A value of 0 (factory default) indicates that no triggers are enabled. Refer to the LNFC User's Guide for more details on how to determine the encoded value based on which events you want to enable. For the sake of brevity, let's assume for this example that you only want to enable our chosen event (#1). The encoded value you will need to enter is "2" so press the **+/HRS** button until the display looks like this:



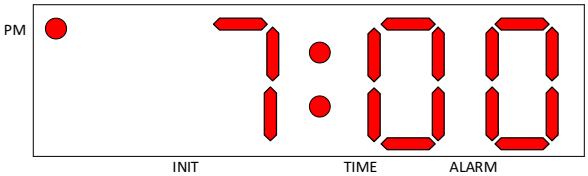
Now press the **SEL** button to save this value. The display will change to the following which is the prompt to enter the Event Trigger #1 start time:



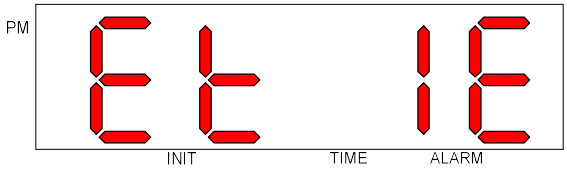
Press the **SEL** button again and the display will then show the current event start time. The PM indicator will only be illuminated if you've configured the LNFC to show 12 hour time format and the current time is PM! For example, if the existing event start time is 6:30pm (12 hour format) the display will look like this:



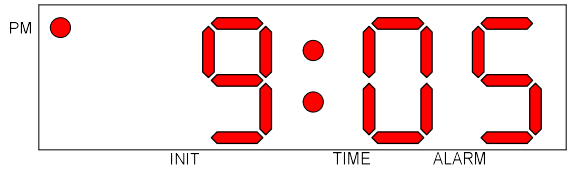
Change the hours by pressing the **+/HRS** key; the hours will increment from the current setting up to 23 (or 11pm) and then "wrap-around" to 00 (or 12am). Change the minutes by pressing the **-/MIN** key; the minutes will increment from the current setting up to 59 and then "wrap-around" to 00. Our chosen start time is 7:00pm so eventually the display should show this:



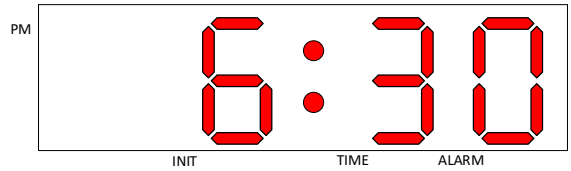
Once you have entered that time correctly press the **SEL** button; the start time value will be in effect and stored on the LNFC. The display will change to this:



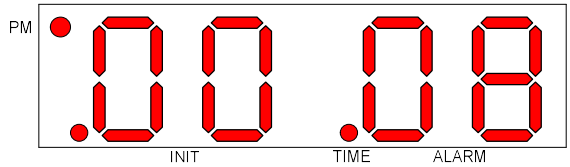
This indicates that you are now going to specify the **End** time for Event Trigger #1. Press the **SEL** button and the display will then show the current event end time. If the end time is 9:05pm (12 hour format) the display will look like this:



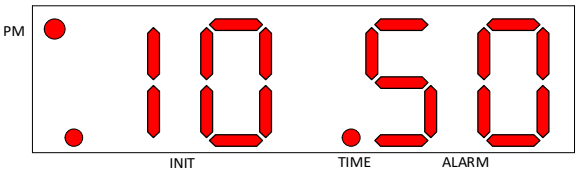
Change the hours by pressing the **+/HRS** key; the hours will increment from the current setting up to 23 (or 11pm) and then "wrap-around" to 00 (or 12am). Change the minutes by pressing the **-/MIN** key; the minutes will increment from the current setting up to 59 and then "wrap-around" to 00. Our chosen end time is 6:30am so eventually the display should show this:



Once you have entered that time correctly press the **SEL** button; the end time value will be in effect and stored on the LNFC. The display will then show a DCC Accessory Decoder switch address. When this Event Trigger is enabled then this LNFC will send a command to this switch address when this event's start time is reached. Here is an example of what the display might look like:



Notice that the time indicator is illuminated and the leftmost decimal point indicator is also lit. This indicates that the display is showing the accessory decoder address (in this case address 8) associated with an Event Trigger. The PM indicator denotes the state of the "switch" for the event trigger when the event start time is reached. When the PM indicator is illuminated the "switch" will be set to **closed**; when the PM indicator is not illuminated the "switch" will be set to **thrown**. When the event end time is reached then the command is sent with the "switch" to be set to the opposite state. Our chosen DCC accessory address is 1050 and the "switch" state sent at the event start time must be **closed** in order to turn on (activate) the ***Light EFX-16*** output. Use the **-/MIN** button to change the tens and units to 50 then use the **+/HRS** button to change the thousands and hundreds to 10. If the PM indicator is not illuminated when you reach 10 then keep pressing the **+HRS** button until the thousands and hundreds go to 20 then roll over to 00 and back up to 10 with the PM indicator illuminated.



Once you have confirmed the correct address and "switch" state press the **SEL** key; the address will be in effect and stored on the LNFC. The display will then show "Et#S" again where "#" is the next event number. Press the **MODE** key to exit out to the current time. We would advise you to cycle the power to the LNFC as this time.

NOTE 1: If the LNFC's initial (i.e. power-on) time is between any of its event triggers' start and end times the start event trigger/command will not be sent until the current time comes back around to it. For our example if the initial time is 12:00am, which is in the window of event trigger #1's start and end time, you might expect the start event trigger/command to be sent immediately. However this is not the case and the trigger/command won't be sent until the current time reaches the event trigger start time (7:00pm in our example).

NOTE 2: Each LNFC's 3 event triggers are unique to that LNFC. So if you have N number of LNFCs you have the ability to configure 3 x N event triggers!

Technical Support

Have any questions? You can reach us via phone or email.