Application Note - AN-109

7-Day, Add-a-Day, Skip-a-Day Timer

NOTICE

This application note is provided for use as a general example and a guide. Divelbiss assumes no responsibility, liability or warranty regarding this application, its use, functionality or reliability to meet application needs. User assumes all responsibility to ensure all safety precautions are taken when using this application note. This application must not be used alone in applications which would be hazardous to personnel in the event of a failure. Precautions must be taken by the user to provide mechanical and/or electrical safeguards external to this application and controllers shown.

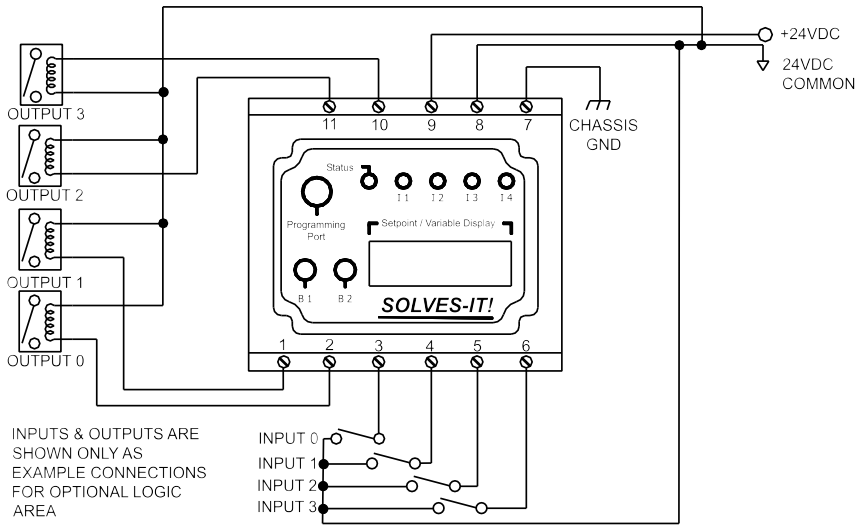
Application Description

This application provides a fully functional 7-day timer. A start time and end time is configured as well as a status for each day of the week. When the status is true for the day of the week and the current time is between the start and end times, a contact is set true to enable the logic section of the program. This contact may be used to drive outputs and add additional logic.

Equipment Used

Controller Family Name	
Controller P/N:	SI-200
Programming Software:	Divelbiss EZ LADDER
Digital I/O	On-Board
Application Program Filename:	AN-109.dld
Programming Cable:	SI-PGM

Connection Diagram



Input / Output Description

GPI0 - GPI3	There are 4 digital inputs. They may be used to add additional logic to this application note. These are boolean variables.
GPO0-GPO3	There are 4 digital outputs. They may be used to add additional logic to this application note. These are boolean variables.

Variables

All variables used in this application are already pre-defined (except for additional logic that will be added). Use the cross reference report or Edit Variables window to view variable information and descriptions.

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Program Description

Each day of the week (Sun -Sat) can be configured as '0' for false and '1' for true. Only on true days will the logic section be active and then only when the actual time of day is in the correct range (start / stop time).

During normal operation, the display will toggle between three different values. For each of these values, a corresponding indicator will be illuminated. The first is the current time which is indicated by I1 being illuminated. The second is the start or begin time which is indicated by I2 being illuminated. The last is the end or stop time which is indicated by I3 being illuminated.

Configuration

The configuration menus are set up a total of 11 menu items. Items 0 through 6 are setups for the days of the week (Sunday through Saturday). Items 7 through 10 are the times for starting and stopping.

Menu Item #	Description
0	Sunday Active (0 or 1)
1	Monday Active (0 or 1)
2	Tuesday Active (0 or 1)
3	Wednesday Active (0 or 1)
4	Thursday Active (0 or 1)
5	Friday Active (0 or 1)
6	Saturday Active (0 or 1)
7	Start Time Hours (0-23)
8	Start Time Minutes (0-59)
9	End Time Hours (0-23)
10	End Time Minutes (0-59)

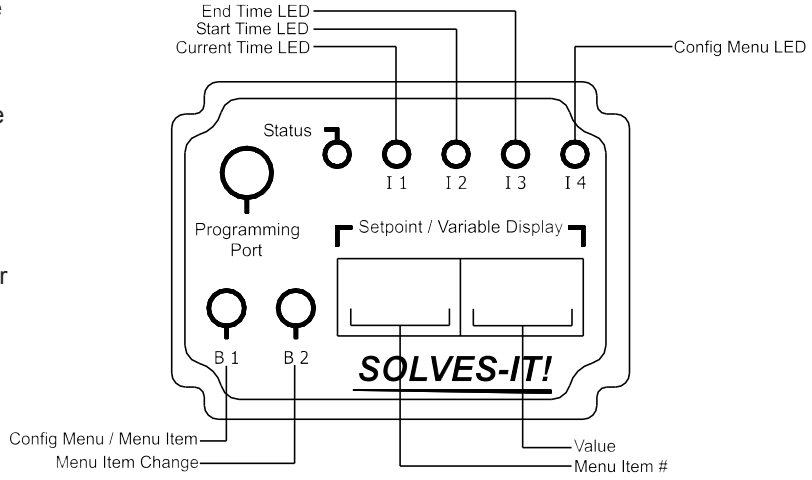
To enter the configuration menu, press the B1 button one time. You are now at Menu Item 0 (Sunday). LED indicator I4 illuminates to identify you are in config mode.

The first two digits displayed are the menu item # and the last two are the items current setting.

For each press of the B1 button, the menu item will increment by one until the last item is reached.

Press B2 changes the actual value of the menu item. For days, it will toggle between '0' and '1' for false and true. For hours and minutes, each press will increment the value by 1 (when the maximum is reached, the value will reset to zero).

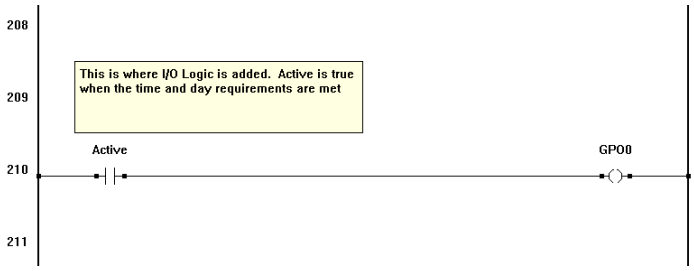
Pressing B1 on the last menu item will exit the configuration.



Additional Logic

This application note comes originally configured to control a single output. Additional logic, using digital inputs, additional digital outputs, internal relays and functions may be used to add even more features and flexibility. Just add additional ladder logic below where the comments are located in Rung 209.

The 'Active' contact is true when the current time is between the start time and end time and the current day is set to be active.



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