

## Repeat Cycle 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

A repeat cycle timer provides a repeatable on and off time. When the TmrStart input is true, the off-timer will begin timing based on the timer setpoints for the off-time (OffTimeVal). When the off-time is reached, the on-timer will begin and time until the on-time has reached the setpoint for on-time (OnTimeVal), then the timing sequence will repeat. The Light output is an indicator of the timer status (on / off).

### Equipment Used

Solves-it	Harsh Environment Controller	PCS
Controller P/N: SI-100 or SI-200	Controller P/N: HEC-1000	Controller P/N: PCS-100 (All Models)
Programming Software: Divelbiss EZ LADDER	Programming Software: Divelbiss EZ LADDER	Programming Software: Divelbiss EZ LADDER
Digital I/O On-Board	Digital I/O On-Board	Digital I/O Using ICM-HDIO-03P
Application Program Filename: AN-106_SI.dld	Application Program Filename: AN-106_HEC.dld	Application Program Filename: AN-106_PCS.dld
Programming Cable: SI-PGM	Programming Cable: HEC-910	Programming Cable: ICM-CA-34
Connection Diagram: Figure 1	Connection Diagram: Figure 2	Connection Diagram: Figure 3
Enhanced Baby Bear		
Controller P/N: ICM-EBB-100 (All Models)		
Programming Software: Divelbiss EZ LADDER		
Digital I/O On-Board		
Application Program Filename: AN-106_EBB.dld		
Programming Cable: ICM-CA-34		
Connection Diagram: Figure 4		

### Input / Output Description

TmrStart : Real world input. Timer Start Signal. A true signal causes the timer(s) to begin timing. Input address: EBB-XXX = DI1.03, PCS-XXX = DI0.00, HEC-1000 = GPIO, SI-XXX = GPIO

Light: Real world output. Timer Status Signal. On indicated timer in 'on-time' state while off indicates 'off-time' state. Output address: EBB-XXX = DO1.03, PCS-XXX = DO0.00, HEC-1000 = GPO0, SI-XXX = GPO0

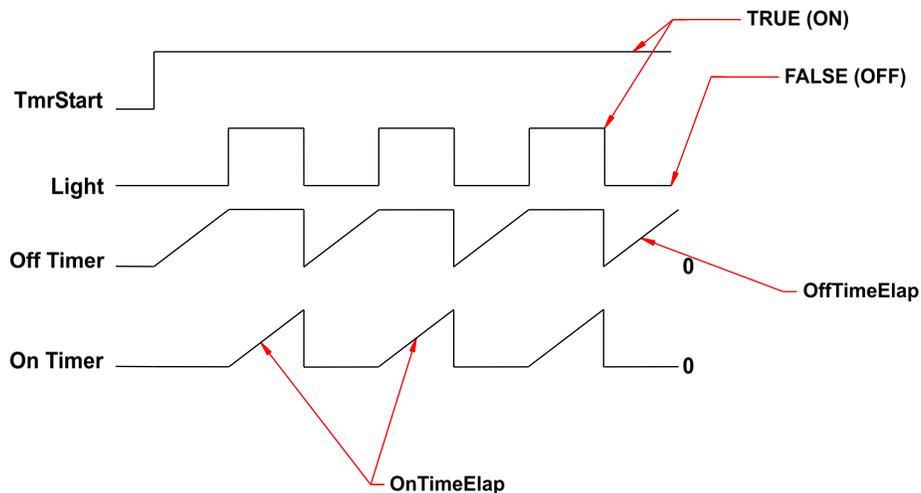
## Program Variables

- TmrStart: Boolean (Normally open contact). Type: Input. Default value = 0. Description: Timer Start Signal
- Light: Boolean (Direct Coil). Type: Output. Default value = 0. Description: Timer Status
- Trig\_On: Boolean. Type: Internal. Default value = 0. Description: Tank Level Ok (low) Point Detected.
- Trig Off: Boolean. Type: Internal. Default value = 0. Description: Tank Level Hi (pump operation needed) Point Detected.
- OnTimeVal: Boolean. Type: Timer. Default value = 5 seconds. Description: On-Time Setpoint.
- OffTimeVal: Boolean. Type: Timer. Default value = 5 seconds. Description: Off-Time Setpoint.
- OffTimeElap: Boolean. Type: Timer. Default value = 0. Description: Elapsed off time.
- OnTimeElap: Boolean. Type: Timer. Default value = 0. Description: Elapsed on time.

## Program Description

- Rungs 4-5: Off Timer. TmrStart signal triggers timer start.
- Rungs 6-7: On Timer. Trig\_On signal the on timer to start. When On-Timer has completed, causes the reset of the Off Timer.
- Rung 8: Light output is controlled using an internal coil of a timer status.

## Timing Diagram



## Connection Diagrams

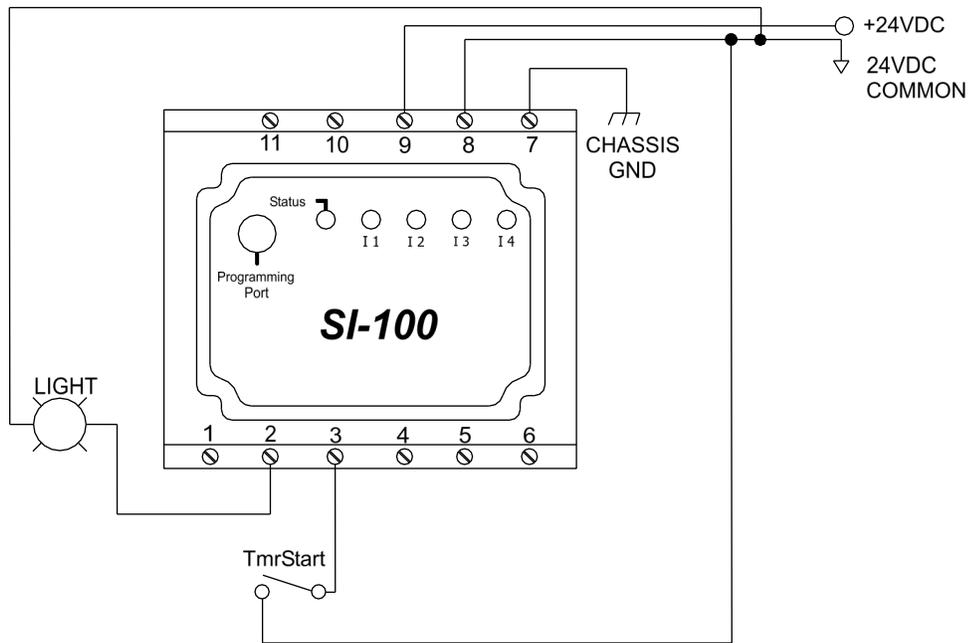


FIGURE 1 - SOLVES-IT CONNECTIONS

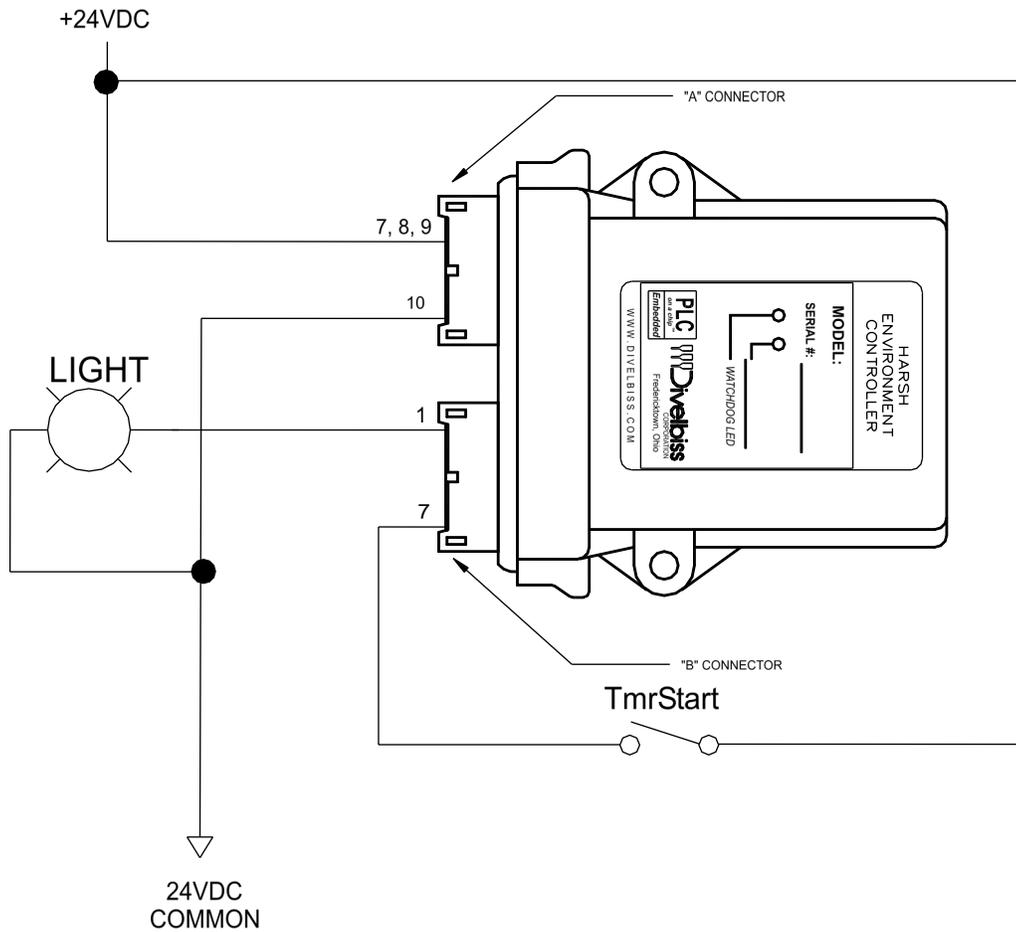


FIGURE 2 - HEC-1000 CONNECTIONS



# Ladder Diagram

