

## Counter with Setpoints

### 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 example shows how to use an up counter and trigger events based upon the actual count value. When the ENABLE is true and RESET is false, for each low to high transition on GPI1, the counter will increment by one. When the count of 25 is achieved, the IND25 output will be true. When the count of 50 is achieved, the counter will be reset and will start from zero.

### 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-200
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-107_SI.dld	Application Program Filename: AN-107_HEC.dld	Application Program Filename: AN-107_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-200
Programming Software: Divelbiss EZ LADDER
Digital I/O On-Board
Application Program Filename: AN-107_EBB.dld
Programming Cable: ICM-CA-34
Connection Diagram: Figure 4

### Input / Output Description

- ENABLE :** Real world input. Counter enable signal. A true signal causes allows the counter to operate. Input address:  
 EBB-XXX = DI1.03, PCS-XXX = DI0.00, HEC-1000 = GPI0, SI-XXX = GPI0
- RESET :** Real world input. Reset counter signal. A true signal causes allows the counter be in reset mode. Input address:  
 EBB-XXX = DI1.05, PCS-XXX = DI0.02, HEC-1000 = GPI2, SI-XXX = GPI02
- IND25:** Real world output. Count 25 Reached Indicator. When true, the count is exactly equal to 25. Output address:  
 EBB-XXX = DO1.03, PCS-XXX = DO0.00, HEC-1000 = GPO0, SI-XXX = GPO0
- IND50:** Real world output. Count 50 Reached Indicator. When true, the count is exactly equal to 50. Output address:  
 EBB-XXX = DO1.04, PCS-XXX = DO0.01, HEC-1000 = GPO1, SI-XXX = GPO1

## Program Variables

ENABLE: Boolean (Normally open contact). Type: Input. Default value = 0. Description: Counter Enable Signal

RESET: Boolean (Normally open contact). Type: Input. Default value = 0. Description: Counter Reset Signal

IND25: Boolean (Direct Coil). Type: Output. Default value = 0. Description: 25 Counts Reached Indicator

IND50: Boolean (Direct Coil). Type: Output. Default value = 0. Description: 50 Counts Reached Indicator

CNT25 Boolean (Direct Coil). Type: Output. Default value = 0. Description: 25 Counts Reached Internal Relay.

CNT50 Boolean (Direct Coil). Type: Output. Default value = 0. Description: 50 Counts Reached Internal Relay.

COUNT: Integer. Type: Internal. Default value = 0. Description: Actual Current Count.

Twentyfive: Integer. Type: Internal. Default value = 25. Description: 25 Comparison Variable

Fifty: Integer. Type: Internal. Default value = 50. Description: 50 Comparison Variable

## Program Description

Rung 1: Counter & Counter Enable Input. True enables counting.

Rungs 2-3: Counter & Counter Resets. True on RESET or IND50 causes counter to reset.

Rungs 4-6 Counter comparison. Compares to see if counter value is equal to 25.

Rungs 7-9 Counter comparison. Compares to see if counter value is equal to 50. When equal to 50, causes counter to reset.

## Connection Diagrams

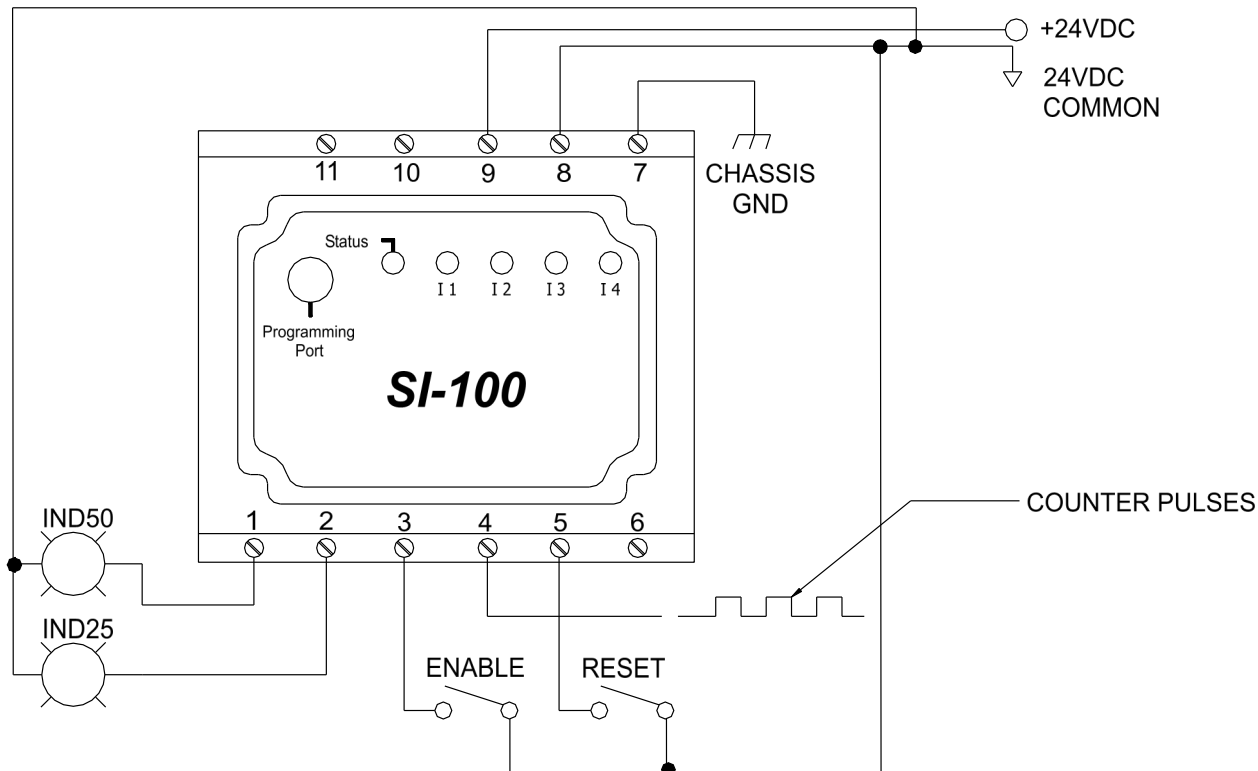


FIGURE 1 - SOLVES-IT CONNECTIONS

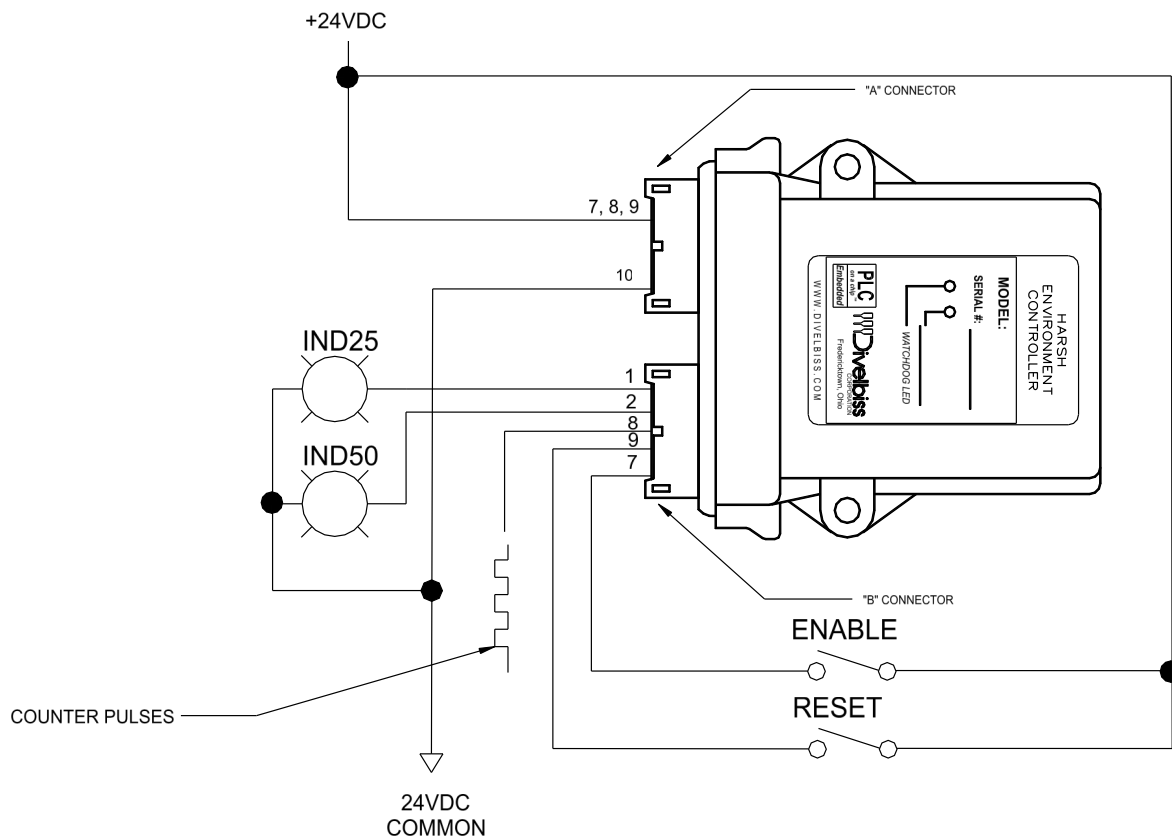


FIGURE 2 - HEC-1000 CONNECTIONS

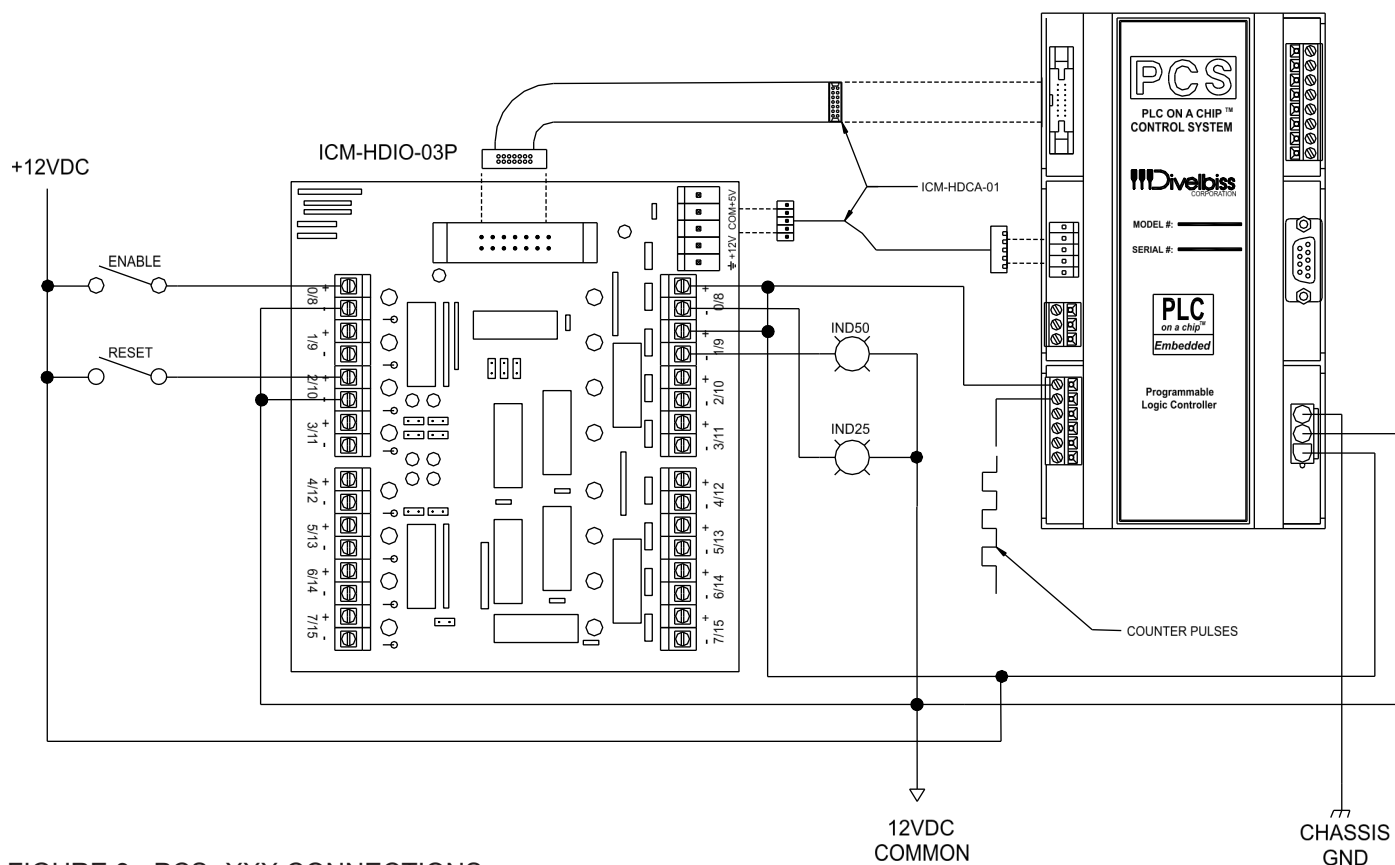


FIGURE 3 - PCS-XXX CONNECTIONS

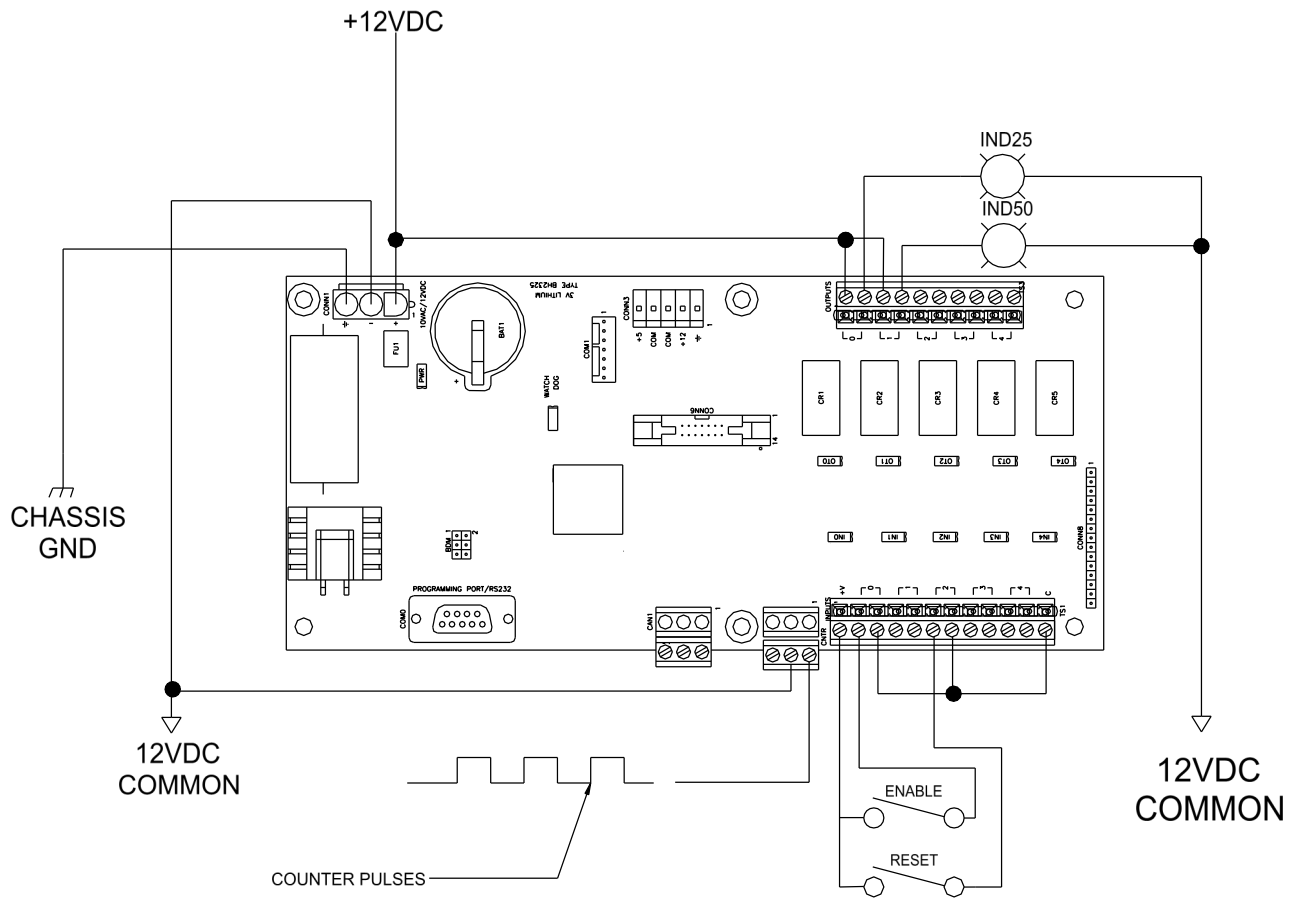


FIGURE 4 - ICM-EBB-XXX CONNECTIONS

## Ladder Diagram

