



Model No: BVST105

PREFACE	Model: BVST105 IP67 rated
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The Model BVST105 is an intelligent Battery Voltage Sensor (BVS) designed to automatically operate the auto start enabled generator (or engine) and to control the battery bank voltage by automatically starting, running and shutting down the engine ones the run time set by multi-range timer elapsed.

How it works

Upon sensing the low voltage threshold (11.8Vdc) the BVS will wait for 5 sec to ensure the voltage recovers back to normal and stabilise above the high voltage threshold (12.8Vdc). If that happens the BVS will do nothing and remain in stand-by mode. However, if voltage hits the low voltage threshold and then stays below the high voltage threshold for more than 5 sec the BVS will trigger the multi-range timer simultaneously closing the auto start volt-free relay which would remain closed for the period set by multi-range timer (if the timer was initially enabled via DIP switch 2).

IMPORTANT!

If timer set for a short period (usually for 10~60 seconds) the BVS sensor may have the priority over the timer and continue to run the engine until the high battery voltage threshold is sensed. This is a normal situation when timer run time was not enough to charge up the battery bank and bring its voltage above the high voltage threshold.



CONNOTATION	DEFAULT SETTING	BVST105 PCB CONNOTATION
1. Low Voltage Threshold Pot.	11.8Vdc (6Vdc min)	
2. High Voltage Threshold Pot.	12.8Vdc (38Vdc max)	
3. High Voltage Threshold LED	Off when HVT sensed	
4. Low Voltage Threshold LED	On when LVT sensed	
5. Delay time jumper link	5 sec delay time when fitted	
6. Multi-range timer	10 sec...24h	
7. Timer range selector	Off (10sec-75min); On (1,5h - 24h)	
8. Timer power supply	Off (disabled); On (active)	
9. Delay time "On" LED	Delay time On → LED flashing	
10. Battery negative supply (-)	40Vdc max	
11. Battery positive supply (+)	40Vdc max	
12/13 Volt-free relay switch	Normally Open, 3A 30Vdc/250Vac	

Adjustable settings available for

1. Low Voltage Threshold (LVT)
2. High Voltage Threshold (HVT)
5. 5 sec delay time before start (can be pre-set by us prior to order)
6. Multi-range timer

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|--|---|
| <ol style="list-style-type: none"> 1. Low Voltage Threshold Potentiometer 2. High Voltage Threshold Potentiometer 3. High Voltage Threshold LED 4. Low Voltage Threshold LED 5. Delay time jumper 6. Multi-range timer | <ol style="list-style-type: none"> 7. Timer range selector 8. Timer power on switch 9. Delay time running LED 10. Battery negative supply (-) 11. Battery Positive supply (+) 12/13. Volt-free relay contacts |
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BVST105 specification

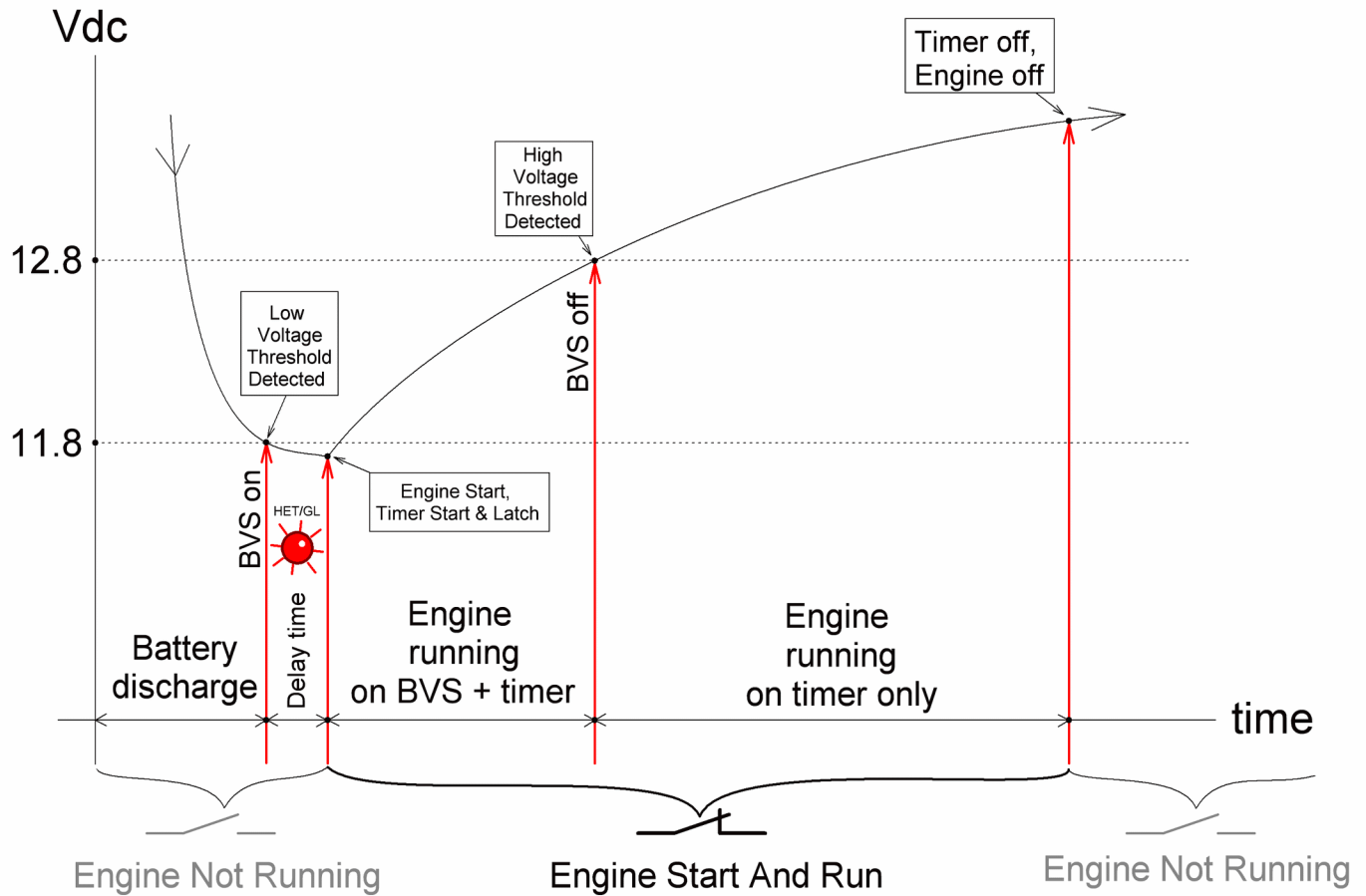
DC Supply: 12V or 24V (6...40Vdc)
Max. standby current: 6,5mA @12Vdc
Auto start relay output: 3A max 30Vdc/250Vac
Run time max.: 24h

Dimensions: 100x68x50mm
Operating temperature range: -30 to +70°C
Humidity Range Operating: 20-80%
Enclosure IP code: IP67 (weatherproof type)



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Functional Diagram (example)



Please note: your controller has been pre-set to start@11.8Vdc and stop@12.8Vdc
BVS Adjustment

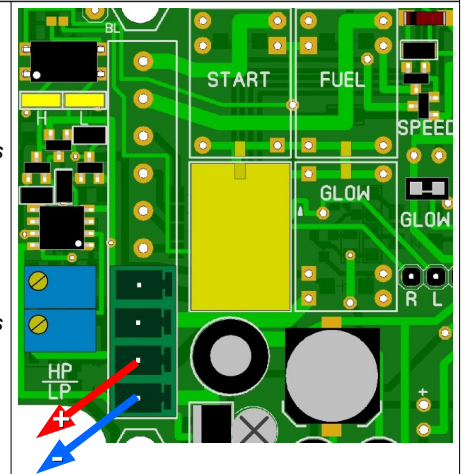
This procedure could also be done with help of adjustable DC power supply (when available)

HOW TO SET UP THE BVS LOW THRESHOLD

1. Connect your discharged (ready to be charged) battery to terminals 10 and 11
2. Start turning LVT Potentiometer (LP) (very slowly) and find the position when LVT LED (L) changes its state from Off to On
3. Stop turning LP immediately when you notice this change.

HOW TO SET UP THE BVS HIGH THRESHOLD

1. Connect your fully charged battery to terminals 10 and 11
2. Start turning HVT Potentiometer (very slowly) and find the position when HVT LED (H) changes its state from On to Off
3. Stop turning HP immediately when you notice this change.

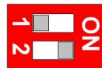








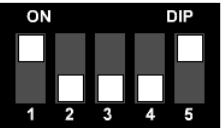
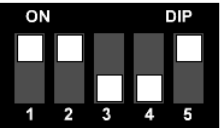
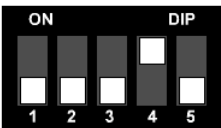
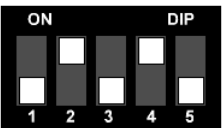
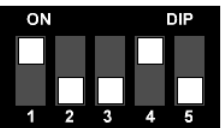
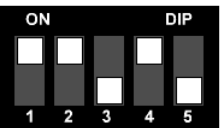

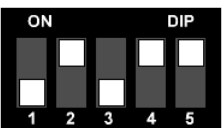
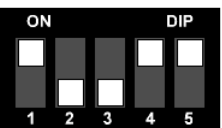
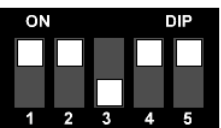


















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MULTI-RANGE TIMER SETTINGS

DIP switch 1 is "OFF" DIP switch 2 is "On"



 10 sec	 4 min	 14 min	 30 min
 20 sec	 5 min	 16 min	 35 min
 30 sec	 6 min	 18 min	 40 min
 60 sec	 7 min	 20 min	 45 min
 90 sec	 8 min	 22 min	 50 min
 120 sec	 9 min	 24 min	 55 min
 150 sec	 10 min	 26 min	 60 min
 180 sec	 12 min	 28 min	 75 min

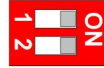
Note: DIP switch 2 in "Off" position means the multi-range timer is disabled. The module will rely on BVS low and high thresholds only.






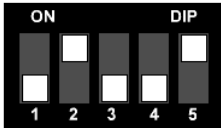
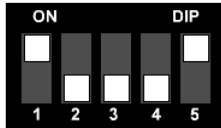

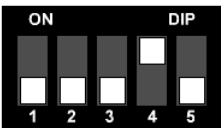
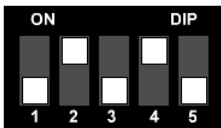
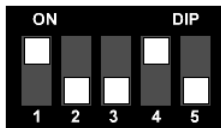

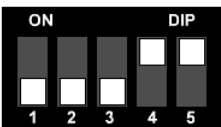
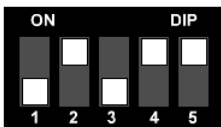








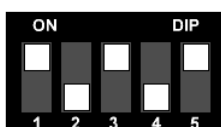








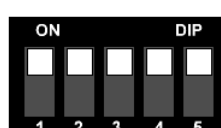


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MULTI-RANGE TIMER SETTINGS

DIP switch 1 is "On" DIP switch 2 is "On"



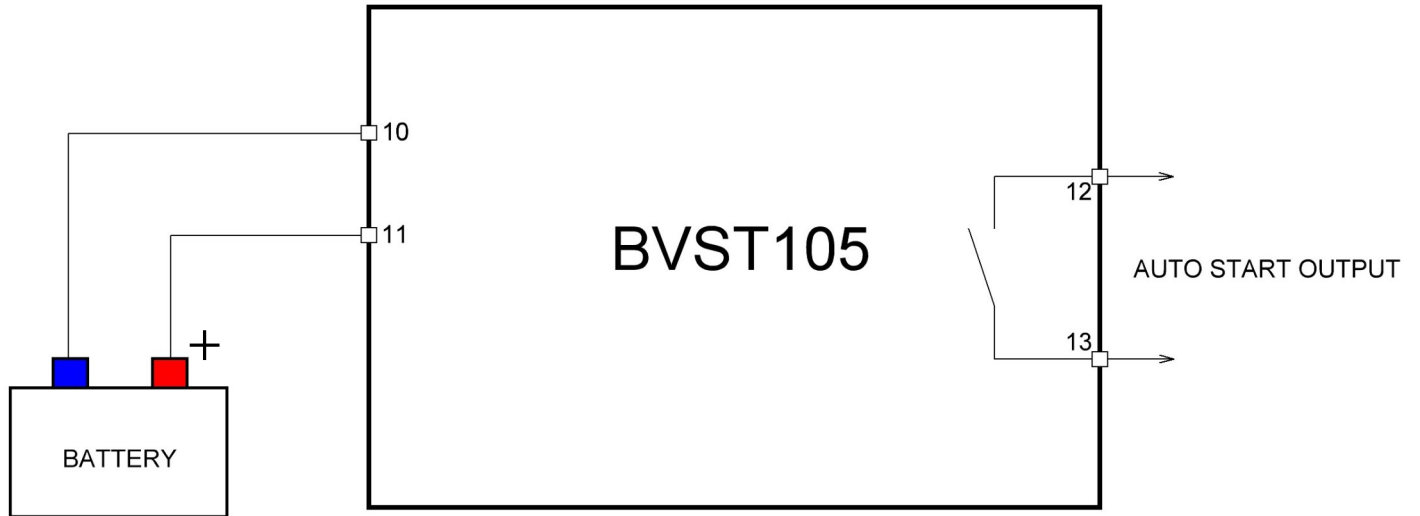
 1.5 h	 5.5 h	 9.5 h	 17 h
 2 h	 6 h	 10 h	 18 h
 2.5 h	 6.5 h	 11 h	 19 h
 3 h	 7 h	 12 h	 20 h
 3.5 h	 7.5 h	 13 h	 21 h
 4 h	 8 h	 14 h	 22 h
 4.5 h	 8.5 h	 15 h	 23 h
 5 h	 9 h	 16 h	 24 h

Note: DIP switch 2 in "Off" position means the multi-range timer is disabled. The module will rely on BVS low and high thresholds only.



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Wiring Diagram



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