

HS-508 Vibration Trip Module

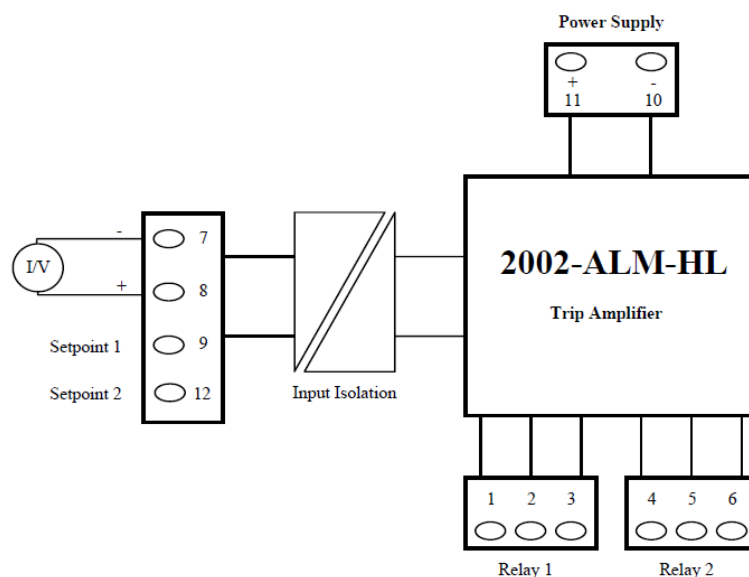
1. Overview

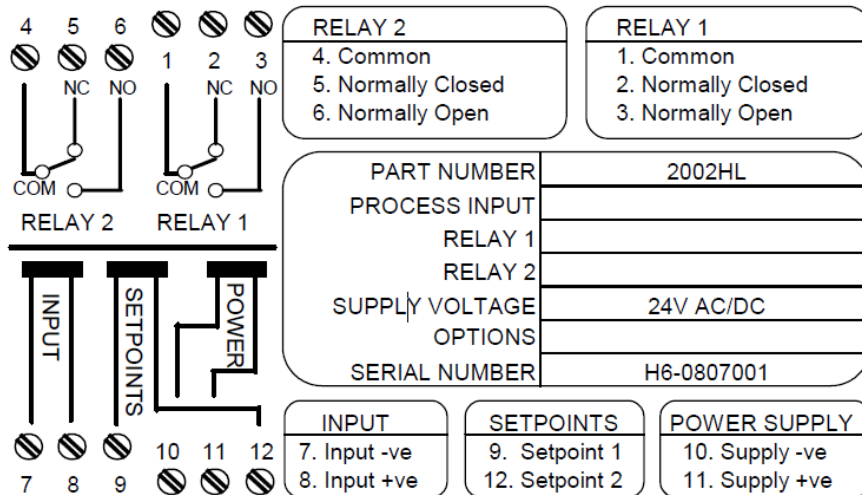
The HS-508 is a configurable trip amplifier capable of accepting a wide variety of electrical input types and providing two trip action relay outputs. Input signal, trip configuration and power supply information are required to define any unit exactly. This information, together with a unique serial number is printed on the side label of each unit; records of the exact configuration of every product shipped are maintained at the factory.

The input stage of the HS-508 produces an internal process signal of 0 - 10V DC corresponding to the input span. The trip set point potentiometers produce set point signals of 0 - 10V DC corresponding to the input span. These signals can be measured between terminal 7 (-ve) and terminal 9 for Setpoint 1 and terminal 12 for Setpoint 2. This enables setpoints to be accurately set without the need for an input simulator. 0-10 V corresponds to 0-100% of the input range.

Internal circuitry compares the process signal with each of the set point levels and changes the state of the output relays and indicator LED's as the signal passes through the set point, the exact action being factory or user configurable.

A hysteresis band (typically 1% of span unless specifically requested) below each set point ensures chatter-free trip operation.





2. Power Supply

The power supply is connected into terminals 10 (negative) and 11 (positive). The supply voltage is indicated on the serial number label (Figure 2)

APPLICATION OF VOLTAGES HIGHER THAN THAT STATED FOR THE SUPPLY MAY CAUSE DAMAGE TO THE INSTRUMENT.

3. Sensor Connections

All sensor connections are made to terminals numbered 7 and 8 on the instrument. The inputs are connected as described below.

DC Voltage Inputs

The signal should be connected between pins 7 (negative) and 8 (positive).

4. Standard (non-latching) operation

The action of each trip can be simply described by considering the state of the relevant relay and LED indicator with process signal either side of the trip set point. The options for each trip are as follows:

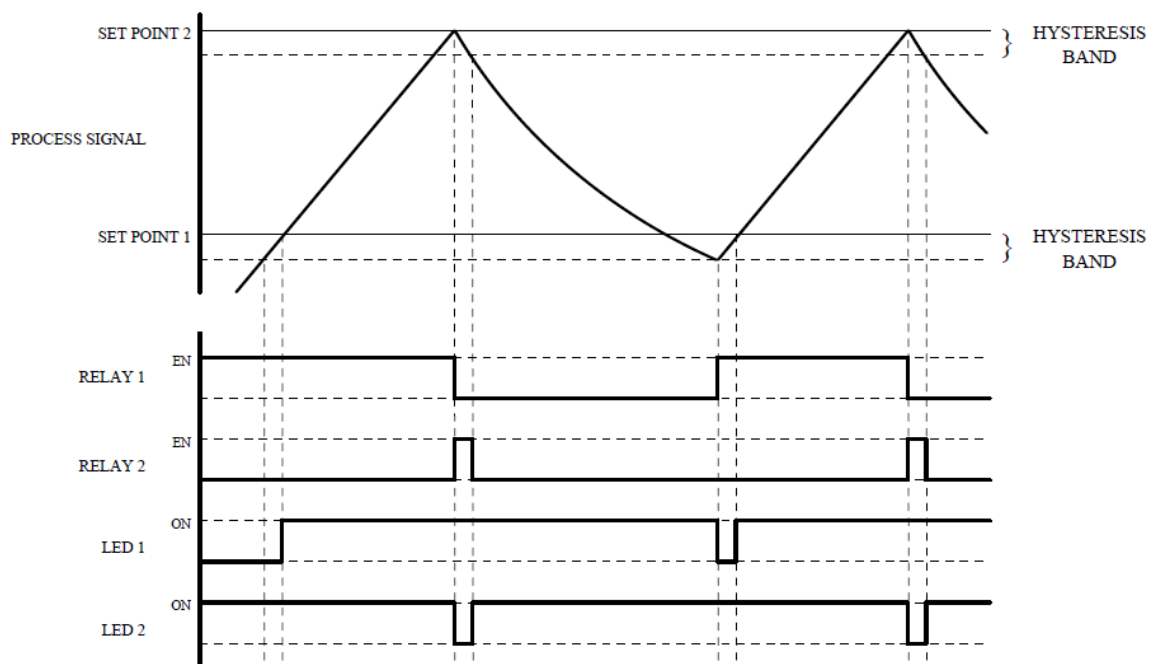
a)	Relay energised for process signal above set point	LED on for process signal above set point
b)	Relay energised for process signal above set point	LED off for process signal above set point
c)	Relay energised for process signal below set point	LED on for process signal below set point
d)	Relay energised for process signal below set point	LED off for process signal below set point

5. Latching Operation

Latching operation of relay 1 can be achieved by connecting link 1. Note that, where latching operation is specified, trip set point 2 is used to set the unlatch threshold such that Relay 2 is not independent. Latching operation is not possible with relay 2.

With Link 1 fitted, Relay 1 can be set to energise when the process signal rises above or falls below trip set point 1, in the normal fashion. At the same time LED 1 can be set to be on above or below set point 1. Once relay 1 has become energised it will remain energised so long as either the initial condition which caused the trip is sustained, or whilst relay 2 is de-energised, or both. i.e. relay 1 can only be latched whilst relay 2 is de-energised and can only be unlatched whilst relay 2 is energised. (Note that LED1 denotes whether the process signal is above or below trip set point 1, not whether relay 1 is energised.)

By way of example the latching mode of operation is likely to be used to maintain the process signal between an upper and a lower limit (for instance tank level control).



When the process signal is below set point 1 relay 1 is energised (latched) and will remain energised until the signal reaches set point 2. At this point relay 1 is unlatched (by relay 2 energising). As the process signal reduces relay 2 de-energises. As the signal falls below set point 1 relay 1 is energised (latched) again and the cycle repeats.

The LEDs can be used to indicate the status as follows:

LED1	LED2	STATUS
OFF	OFF	Power Fail
OFF	ON	At or below bottom unit
ON	OFF	At or above top limit
ON	ON	Within limits

6. Setting Trip Points

The trip points can be measured between connection terminal 7 and terminal 9 for Setpoint 1 and terminal 12 for Setpoint 2. The measured signal is a voltage between 0 and 10V corresponding to 0-100% of the input range of the unit.

7. HS-508 Trip Points

Since the 0-10V process signal is linear for this device the trip point is equal to 100% of span multiplied by the set point voltage

e.g. 4-20mA input

Trip at 16mA input = 75% of span

Therefore trip set point = 7.50V