

# FREQUENCY ALARM (50 Hz minimum)

MODEL

**ASP**

## BEFORE USE ....

Thank you for choosing us. Before use, please check contents of the package you received as outlined below.

If you have any problems or questions with the product, please contact our sales office or representatives.

### ■ PACKAGE INCLUDES:

Frequency alarm (body + base socket).....(1)

### ■ MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

### ■ INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

## POINTS OF CAUTION

### ■ POWER INPUT RATING & OPERATIONAL RANGE

- Locate the power input rating marked on the product and confirm its operational range as indicated below:

**AC power:** Rating  $\pm 10\%$ , 50/60  $\pm 2$  Hz, approx. 2VA

**DC power:** Rating  $\pm 10\%$ , approx. 2W  
or 85 – 150V, approx. 2W for 110V rating

### ■ GENERAL PRECAUTIONS

- Before you remove the unit from its base socket or mount it, turn off the power supply and input signal for safety.

### ■ ENVIRONMENT

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within  $-5$  to  $+60^{\circ}\text{C}$  ( $23$  to  $140^{\circ}\text{F}$ ) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

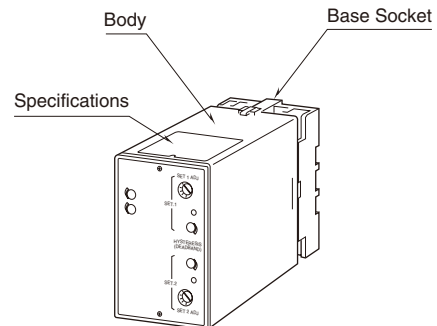
### ■ WIRING

- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

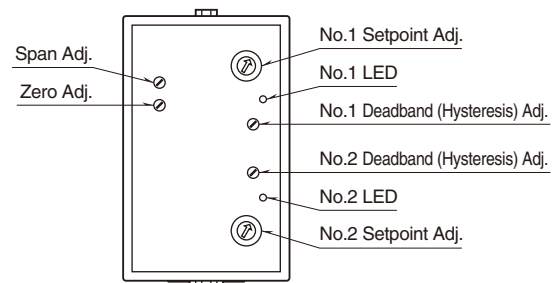
### ■ AND ....

- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

## COMPONENT IDENTIFICATION



### ■ FRONT PANEL CONFIGURATION



#### • Span Adj.

#### • Zero Adj.

#### • No. 1 Setpoint Adj.

Used for adjusting No. 1 alarm setpoint.

#### • No. 1 LED

Turns on when No. 1 alarm is tripped.

#### • No. 1 Deadband (hysteresis) Adj.

Used for adjusting No. 1 deadband (hysteresis) within 1 – 100%.

#### • No. 2 Deadband (hysteresis) Adj.

Used for adjusting No. 2 deadband (hysteresis) within 1 – 100%.

#### • No. 2 LED

Turns on when No. 2 alarm is tripped.

#### • No. 2 Setpoint Adj.

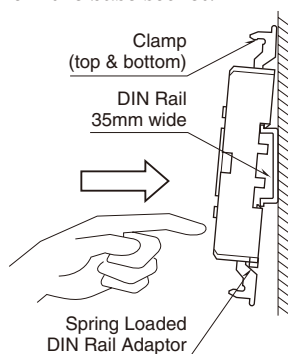
Used for adjusting No. 2 alarm setpoint.

## INSTALLATION

Detach the yellow clamps located at the top and bottom of the unit for separate the body from the base socket.

## ■ DIN RAIL MOUNTING

Set the base socket so that its DIN rail adaptor is at the bottom. Hang the upper hook at the rear side of base socket on the DIN rail and push in the lower. When removing the socket, push down the DIN rail adaptor utilizing a minus screwdriver and pull.



## ■ WALL MOUNTING

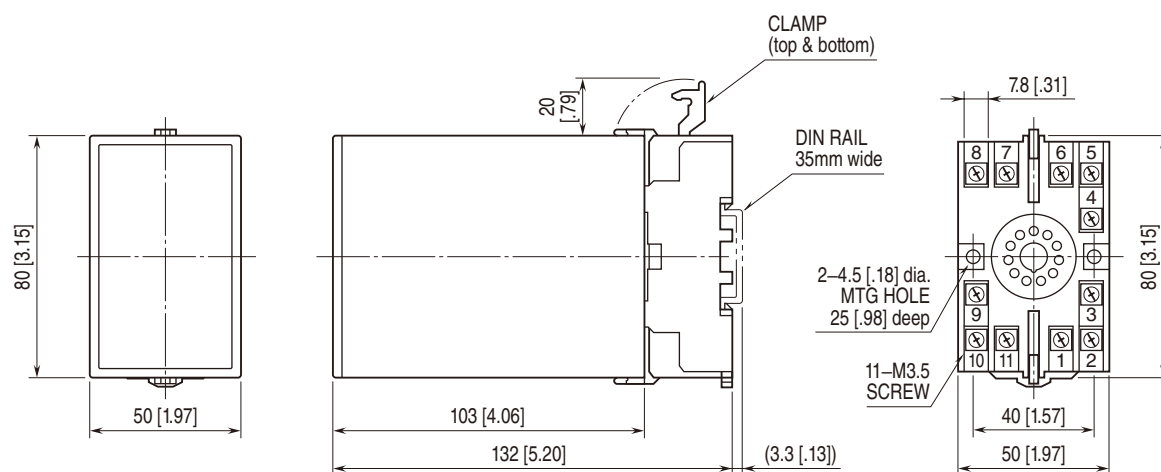
Refer to "EXTERNAL DIMENSIONS."

Shape and size of the base socket are slightly different with various socket types.

## TERMINAL CONNECTIONS

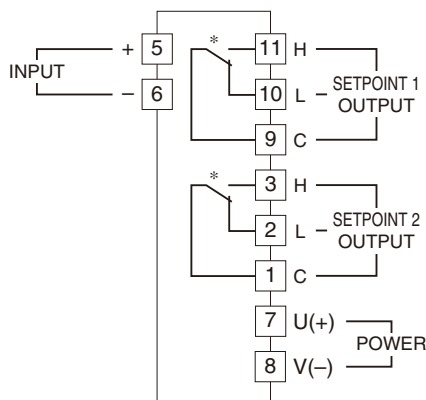
Connect the unit as in the diagram below or refer to the connection diagram on the front of the unit.

■ **EXTERNAL DIMENSIONS** unit: mm [inch]



- When mounting, no extra space is needed between units.

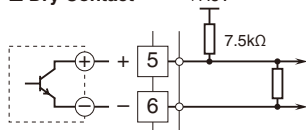
## CONNECTION DIAGRAM



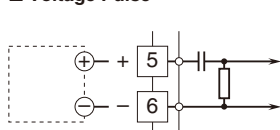
\*Relay status for output codes "1" & "4", at power OFF.

### Input Connection Examples

#### ■ Dry Contact



#### ■ Voltage Pulse



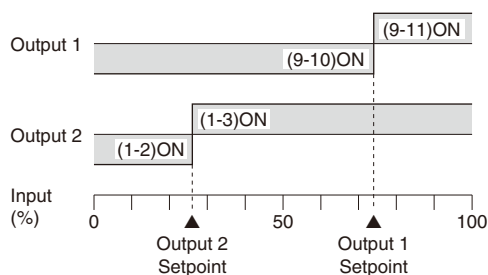
## CHECKING

- 1) Terminal wiring: Check that all cables are correctly connected according to the connection diagram.
- 2) Power input voltage: Check voltage across the terminal 7 – 8 with a multimeter.
- 3) Input: Check input terminal 5 (+) – 6 (–) with an oscilloscope.

Check that the pulse width is within 50 ±30% duty ratio at 100% input. Check also that the voltage level is 2V p-p or greater, and that the frequency equals to the value described on the specifications.

- 4) Alarm operations: Check the alarm operations referring to the figure below.
- 5) Output load: Check that the output load is 380V AC/120VA or 125V DC/30W at the maximum. For use with inductive load, external protection is recommended.

### Alarm Trip Operation Terminal No. in parentheses



### Trip Operation in Power Failure

- Output Code: 1 & 4: Terminals 1 – 2, 9 – 10 turn ON
- Output Code: 2 & 3: Terminals 1 – 3, 9 – 11 turn ON

## ADJUSTMENT PROCEDURE

### ■ ALARM SETPOINT AND DEADBAND (HYSTERESIS)

- 1) Apply a simulated input signal appropriate for alarm setpoint.
- 2) For a Hi setpoint, turn the setpoint adj. from 100% (from 0% for Lo) until the relay trips.
- 3) Decrease (increase for Lo) the input signal by desired deadband (hysteresis) width.
- 4) Turn the deadband (hysteresis) adj. from 100% until the relay trip is cancelled.

## MAINTENANCE

Regular calibration procedure is explained below:

### ■ CALIBRATION

Warm up the unit for at least 10 minutes.

#### • Hi Setpoint

Increase the input signal from a value lower than the setpoint and check that the trip point remains within the accuracy described in the data sheet.

#### • Lo Setpoint

Decrease the input signal from a value higher than the setpoint and check that the trip point remains within the accuracy described in the data sheet.

When the trip points are shifted, please contact our sales office or representatives.

## LIGHTNING SURGE PROTECTION

We offer a series of lightning surge protector for protection against induced lightning surges. Please contact us to choose appropriate models.