INSTALLATION

The JH7580 plugs into any standard 8-pin octal relay socket. Accessories available from JH Technology include part # DS008 suitable for DIN rail or surface mounting.

CONNECTIONS

Refer to the *Block Diagram* for pin connection details. For standard voltage inputs, connect the input to pins 5 and 6.

For open-collector or contact-closure inputs, jumper pins 4 and 5 to connect the internal pull-up resistor. Connect the input to pins 5(+) and 6(-). Turn the *SENS* trimpot fully clockwise, then back it off about 3 turns.

The JH7580 is capable of supplying DC power to certain proximity sensors (approximately 18Vdc, unregulated, 25mA maximum current). To use this feature connect the sensor's (+) power to pin 2, its (+) output to pin 5 and its (-) common terminal to pin 6.

NOTE: Pins 2 and 4 provide features not included on similar units from other manufacturers and are connected to circuitry within the transmitter. *Do not use terminals 2 and 4 on your socket for tie points.*

QUICK-CHECK LEDs

Red-green LEDs give a quick indication of the relative output. Red will be brighter at the low end, green at high, and at 50% both will be about equal. Red-only indicates offscale low while green-only indicates offscale high.

SENSITIVITY ADJUSTMENT

The *SENS* (sensitivity) trimpot sets the threshold below which the unit will not respond. (See Specifications for details.) Turn *clockwise* for *maximum sensitivity*, counterclockwise to reduce susceptibility to noise and interference.

To adjust sensitivity in an operating system, run the system at minimum-input conditions (for example, minimum operating RPM). Turn the *SENS* adjustment counterclockwise until the transmitter's output suddenly drops, then turn it back clockwise two turns.

To adjust using a calibrated input, set the input amplitude to half the minimum operating peak-to-peak voltage. Turns the *SENS* adjustment counterclockwise until the transmitter's output suddenly drops. Increase the input to normal amplitude if recalibrating.

CALIBRATION AND RANGE CHANGES

Please refer to the insert page

MODEL NUMBERS

AC Power: Model JH7580-AC
DC Power: Model JH7580-DC

SPECIFICATIONS

Input Range Capabilities:	From 0/10Hz to 0/100kHz. Some expanded-scale inputs possible - see insert page.
Threshold Adjustment:	*Max sensitivity (full clockwise).* Responds to inputs 50mV or greater for frequencies below 1kHz. Required input increases with frequency, to 1V pk-pk at 100kHz. *Min. sensitivity (full counterclockwise).* Responds to inputs 8V pk-pk or greater at frequencies below 1kHz. Required input increases with frequency, to 20V pk-pk at 100kHz.
Max. Input:	700 volts peak-to-peak. (Equivalent to 250Vrms sine wave.)
Output Range Capabilities:	*Voltages*: from 0/0.5V to -10/+10Vdc. *Currents*: from 0/1 to 0/25mAdc. (Includes 4/20mA.) See insert page for details.
Accuracy:	$\pm$0.1% of span or better if properly calibrated.
Linearity:	$\pm$0.05% of span or better.
Output Ripple:	$\pm$0.1% of span for input frequencies above 25% of span or 5Hz, whichever is greater.
Isolation:	*Input to Output:* 1,000Vrms (1,400V peak). *Power to Input/Output:* 1,500Vrms (2,100V peak).
Operating Temperature:	-10 to +60 deg C. (14 to 140 deg. F.)
Temperature Stability:	0.02%/deg C (0/011%/deg F) or better.
Power Options:	*AC:* 115 or 230Vac, 50/60Hz, 2.5V-A max. *DC:* 12 or 24Vdc, 2.5W max.

SEVEN-YEAR WARRANTY

The JH7580 will be replaced free if it fails due to defects in materials or workmanship within seven years of the date shipped.
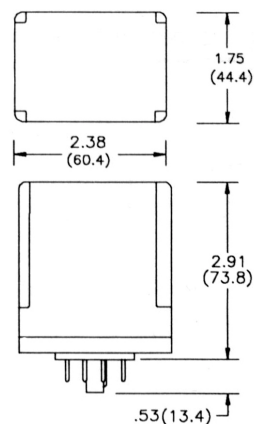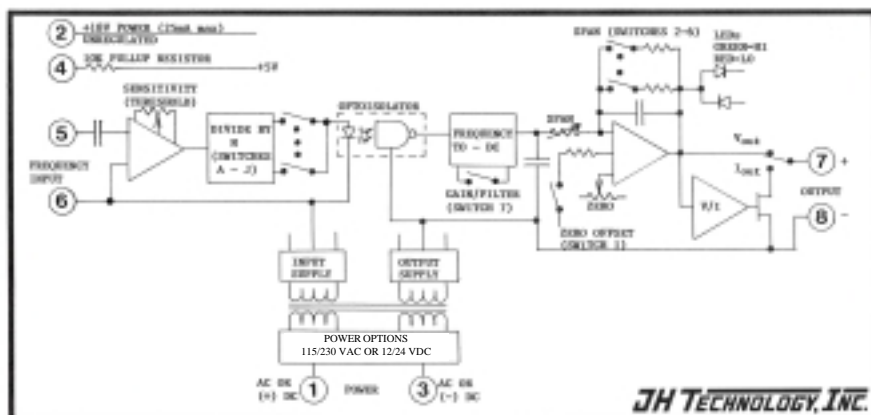
IMPORTANT: Model JH7580 uses pins 2 and 4 to provide features not included on similar products from other manufacturers. These pins are connected to circuitry within the transmitter. *DO NOT USE TERMINALS 2 & 4 ON YOUR SOCKET FOR TIE POINTS.*

Open Collector or Contact Closure Inputs: Jumper pins 4 and 5 to connect the internal pull-up resistor. Connect the input to pins 5(+) and 6(-).

DC Powered Proximity Sensors: For sensors capable of running on +18Vdc unregulated, 25mA max., connect the sensor's (+) power to pin 2, its (+) output to pin 5 and its (-) common to pin 6

USER-RANGEABLE FREQUENCY TRANSMITTER

The Model JH7580 User-Rangeable Frequency Transmitter provides a DC voltage or current output proportional to the input signal's frequency or pulse rate. It can handle inputs from 50mV to 700V peak-to-peak without recalibration. Input/output isolation guards against ground loops and against shock hazards when using high-voltage inputs. A sensitivity adjustment allows threshold optimization for each application.

The JH7580 is fully user-rangeable using the enclosed instructions. A built-in pull-up resistor can be connected for open-collector or contact-closure inputs. A built-in DC excitation supply is available to power low-current DC proximity sensors.

AC and DC powered models are available.

INPUT SWITCH SETTINGS

Input frequency ranges from 0/10Hz to 0/100kHz are possible using the following switch settings.

Input Range	Turn On Switches	Input Range	Turn On Switches
Low frequency, slow response:		0/400 to 0/800Hz	C, 7
0/10 to 0/20 Hz	A	0/800 to 0/1600Hz	D, 7
0/20 to 0/40Hz	B	0/1.6 to 0/3.2kHz	E, 7
0/40 to 0/80Hz	C	0/3.2 to 0/6.4kHz	F, 7
0/80 to 0/160Hz	D	0/6.4 to 0/13kHz	G, 7
Normal response:		0/13 to 0/26kHz	H, 7
0/100 to 0/200Hz	A, 7	0/26 to 0/50kHz	I, 7
0/200 to 0/400Hz	B, 7	0/50 to 0/100kHz	J, 7

OUTPUT SWITCH SETTINGS - COMMON RANGES

Output Range	Turn On Switches	Output Range	Turn On Switches
Voltages - slide switch to V:		-10/+10V	1
0/1V	3, 4, 5, 6	Currents - slide switch to C:	
-1/+1V	1, 4, 5, 6	0/1mA	2, 3, 4, 5, 6
0/2V	4, 5, 6	1/5mA	4, 5, 6
0/5V	2, 5, 6	0/10mA	2, 5, 6
1/5V	2, 3, 5, 6	0/20mA	6
-5/+5V	1, 6	4/20mA	2, 3, 6
0/10V	6		

OTHER OUTPUT SWITCH SETTINGS - SPAN

Set switches for output span as follows. Remember, *SPAN=Full Scale minus Low End.* For example, 4/20mA equals 16mA span, -5/+5V equals 10V span. *Choose the switch setting nearest your required output span.* In some cases, especially at lower spans, ranges may not fully overlap. If you cannot achieve your required span, try the next higher or lower setting.

Voltage Span -or- Slide Switch to V	Current Span Slide Switch to C	Turn On Switches
0.5V	1mA	2, 3, 4, 5, 6
1V	2mA	3, 4, 5, 6
1.5V	3mA	2, 4, 5, 6
2V	4mA	4, 5, 6
4V	8mA	2, 3, 5, 6
5V	10mA	2, 5, 6
6.2V	12.5mA	4, 6
8.2V	16.5mA	2, 3, 6

9.7V	19.5mA	6
10.5V	21mA	2, 3, 4, 5
12V	24mA	4, 5
14V		2, 3, 5
15.5V		5
16V		4
18V		2, 3
20V		(none)

OTHER OUTPUT SWITCH SETTINGS - ZERO OFFSET

For low-end (0 Hz) outputs between -12% and +30% of span, turns switch #1 *OFF*. (Example: for 4/20mA, 4mA is +25% of the 16mA span.) For low-end outputs between -54% and -12% of span, turn switch #1 *ON*. (Example: for -5/+5V, -5V is -50% of the 10V span.)

EXPANDED SCALE INPUTS

The JH7580 was designed specifically for inputs starting at zero Hz, but it is sometimes possible to provided expanded scale inputs. Here are two examples.

A. 40/80Hz input, 0/10V output.
Set the switches for 0/80Hz input and -10/+10V output per above. Calibrate for -10V output with 0Hz input and +10V output with 80Hz input.

B. 40/80Hz input, 4/20mA output.
Set the switches for 0/80Hz input and -12/+20mA output (switch positions 1, 4). It is not possible to obtain negative current outputs, so calibrate for 4mA output at 40Hz, 20mA output at 80Hz. Because the low end (0Hz) cannot be set, a considerable amount of zero-span interaction will occur in calibration.

CALIBRATION - AFTER SETTING SWITCHES

Connect a precision frequency generator to the input. Connect a precision DC voltage or current meter to the output. For best accuracy the meter should be 4-1/2 digits or better. (Note: If the JH7580 does not respond to frequency changes, check the sensitivity setting as described in the main portion of this manual.)

Set the input to the low end of the frequency range (usually zero). Adjust *ZERO* for the proper low-end output.

Raise the input to the full-scale frequency. Adjust *SPAN* for the proper full- scale output.

Repeat until both readings are correct.