RPS-401A, RPS-426A

Features

- Adjustable Zero & Span
- Various Sensing Ranges
- Narrow Sensing Beam
- LED Strength Indicator
- Short Circuit Protected
- Reverse Polarity Protected
- Analog Current & Voltage Outputs
- Inverted & Non-Inverted Outputs
- Self Contained Barrel Housing
- Input Voltage 20 - 30VDC
- RPS-401A in Plastic Housing
- RPS-426A in Stainless Steel Housing

The RPS-401A, RPS-426A analog ultrasonic sensors are enclosed in a barrel housing and are completely self contained. They are powered by 20 - 30VDC and are reverse polarity protected. The sensors have a narrow beam angle which enables them to get into tight places. A flat target can tilt up to 8 degrees and still be detected. The RPS-401A and RPS-426A have two short circuit protected analog outputs, 4 - 20mA and 0 - 10VDC. These outputs can easily be inverted and scaled over almost any range by means of adjusting the near point P1 and far point P2. For setup purposes a LED strength indicator is provided. The LED is green when not detecting a target. The color can vary from yellow to bright red when detecting a target depending on how strong the reflected signal is from the target. Yellow indicates a weak signal and bright red indicates a strong signal. The transducer frequency for the RPS-401A is 175kHz for the 4 - 40" range and 135kHz for the 8 - 80" range. The RPS-426A has an 8 - 80" range and also operates at a frequency of 135kHz. The RPS-401A housing is constructed of PVC plastic, and the RPS-426A is Stainless Steel. The housing measures 30mm x 104mm. A standard 6' cable is provided, or a quick disconnect (QD) version is also available.

Minimum Analog Ranging

Minimum Analog Ranging is adjusting the span of the sensor to minimum. 5" for sensors with a 40" range and 12" for sensors with an 80" range. The minimum span can be adjusted to occur over any part of the sensors range. For example the minimum span on an RPS-401A-40 could be adjusted to occur from 10 - 15" or 25 - 30". This is done by adjusting the two potentiometers on the sensor. P1 adjusts the near point and P2 adjusts the far point. Repeat the adjustment of P1 and P2 at least once to achieve the desired span. The analog output can be adjusted anywhere between the minimum and maximum span by adjusting P1 and P2.

Maximum Analog Ranging

Maximum Analog Ranging is adjusting the span of the sensor to maximum. 36" for sensors with a 40" range and 72" for sensors with an 80" range. The maximum span will go from the sensors minimum sensing distance 4" to 40" for sensors with a 40" range and 8" to 80" for sensors with an 80" range. This is done by adjusting the two potentiometers on the sensor. P1 adjusts the near point and P2 adjusts the far point. Repeat the adjustment of P1 and P2 at least once to achieve the desired span. The analog output can be adjusted anywhere between the minimum and maximum span by adjusting P1 and P2.

Inverted Analog Outputs

The RPS-401A and RPS-426A sensors have the ability to invert the analog output, meaning that the current or voltage will decrease with distance. For the current output to be inverted the voltage output wire needs to be tied to the positive supply voltage wire for the sensor. This will invert the current output to 20mA - 4mA. For the voltage output to be inverted the current output wire needs to be tied to the positive supply voltage wire for the sensor. This will invert the voltage output to 10V - 0V In the non-inverted configuration P1 adjusts the near point 4mA or 0V and P2 adjusts the far point 20mA or 10V. In the inverted configuration P1 adjusts the near point 20mA or 10V and P2 adjusts the far point 4mA or 0V.

Specifications:

Range:	RPS-401A	Adjustable 4 - 40" or 8 - 80"
	RPS-426A	Adjustable 4 - 40" or 8 - 80"

Power Input: 20 - 30VDC Reverse Polarity Protected

Input Current: 90mA, Maximum

Ambient Temperature: 0 - 60ºC or 32 - 140ºF

Humidity: 0 - 95% Non-Condensing

Housing: RPS-401A PVC with a PVC sensing face
RPS-426A 303 Grade Stainless Steel with PPS & PTFE sensing face

Outputs:
Analog Current Analog Current Sourcing Output
4 - 20mA Inverted & Non-Inverted
Load 0 Ohms to 500 Ohms

Analog Voltage Analog Voltage Output
0 - 10V Inverted & Non-Inverted
Load 500 Ohms to Infinity
Short Circuit Protected

Transducer Frequency: 4 - 40"   8 - 80"
175kHz   135kHz

Response Time: 4 - 40"   8 - 80"
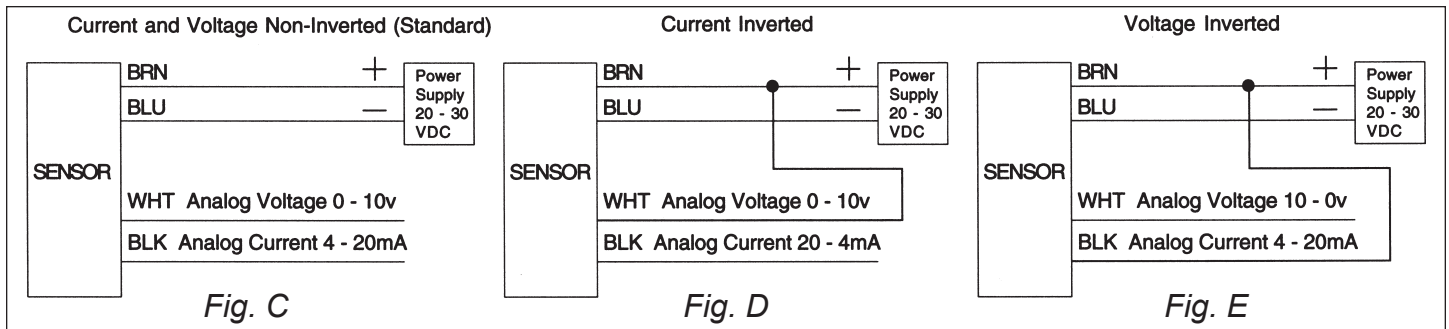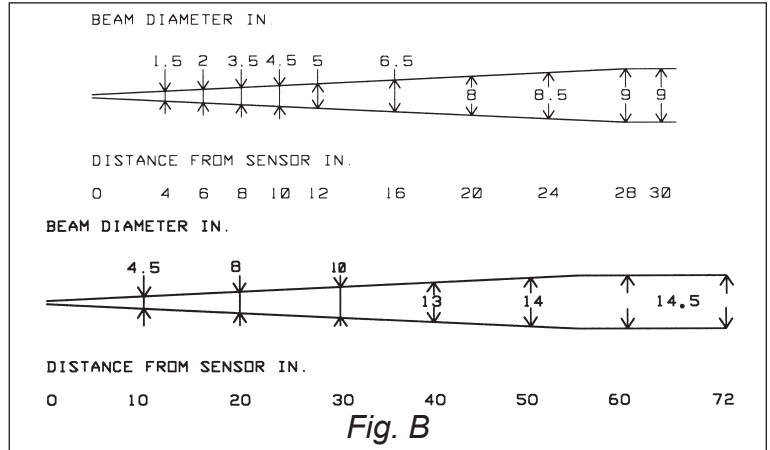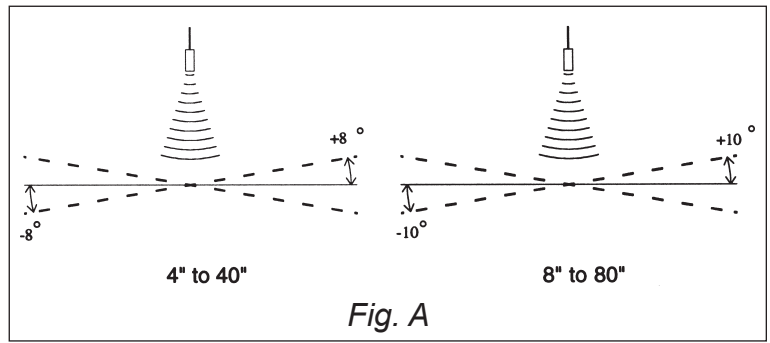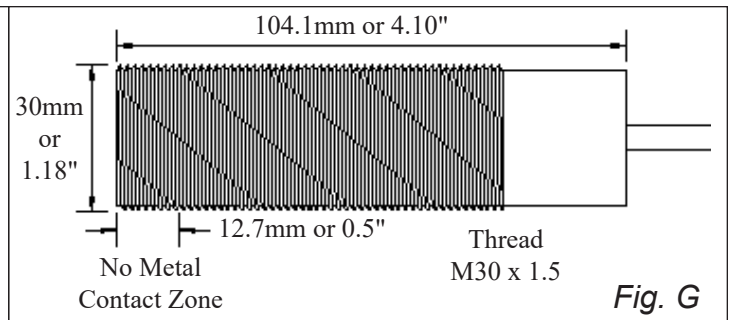16ms   35ms

Weight: 11 ounces

4" to 40"   8" to 80"

Fig. A

BEAM DIAMETER IN.

DISTANCE FROM SENSOR IN.

BEAM DIAMETER IN.

DISTANCE FROM SENSOR IN.

Fig. B

Current and Voltage Non-Inverted (Standard)

Fig. C

Current Inverted

Fig. D

Voltage Inverted

Fig. E

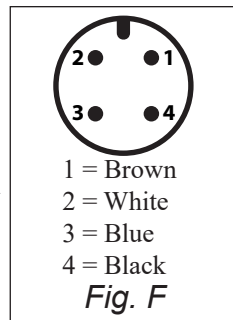**Figure:**
A - Angle of Tilt
B - Beam Spread
C - Wiring Diag. RPS-401A Standard
D - Wiring Diag. RPS-401A Current Inverted
E - Wiring Diag. RPS-401A Voltage Inverted
F - Conn. Diag. QD version M12 Male Plug
G - Mounting Dimensions

1 = Brown
2 = White
3 = Blue
4 = Black

Fig. F

104.1mm or 4.10"
30mm or 1.18"
12.7mm or 0.5"
No Metal Contact Zone
Thread M30 x 1.5

Fig. G

PART NUMBER	RANGE	OUTPUT / DESCRIPTION
RPS-401A-40	4 - 40"	0 - 10VDC and 4 - 20mA Analog
RPS-401A-80	8 - 80"	0 - 10VDC and 4 - 20mA Analog
RPS-401A-40QD	4 - 40"	0 - 10VDC and 4 - 20mA Analog - Cable Sold Separately
RPS-401A-80QD	8 - 80"	0 - 10VDC and 4 - 20mA Analog - Cable Sold Separately
RPS-426A-40	4 - 40"	0 - 10VDC and 4 - 20mA Analog
RPS-426A-80	8 - 80"	0 - 10VDC and 4 - 20mA Analog
RPS-426A-40QD	4 - 40"	0 - 10VDC and 4 - 20mA Analog - Cable Sold Separately
RPS-426A-80QD	8 - 80"	0 - 10VDC and 4 - 20mA Analog - Cable Sold Separately
F32-5001183		2 meter Cable for QD version, M12 4-Pin 22 AWG
F32-5001186		5 meter Cable for QD version, M12 4-Pin 22 AWG