

General Description

The Model 31611 Capacitance Sensor is designed for intermediate center guide applications where large width variations are encountered and accuracy requirements are not critical. This unique sensor will operate in clouded, dirty and high temperature environments, where photoelectric sensors normally cannot be used. It requires little or no maintenance.

Two types of sensors are available; a C-frame type sensor with a fixed gap of 18 inches, and a Separate Channel type sensor, which can be mounted to provide adequate clearance for most installations (18 inches maximum typical).

The sensors function within a tuned circuit designed so that any change in lateral movement of the strip will cause a capacitance change which provides an error signal for the controller. Materials to be guided with the Capacitance Sensor must be metal or a metal mesh and preferably should be grounded for best results.

The Model 33130 Capacitance Centerguide Controller is required for sensor operation. It is designed to accept capacitance changes from the sensors and provide the control signal required. Strip position errors are detected in the tuned circuit and rectified and as a result the controller DC output is proportional to the error signal. Output signals are intended to be used with an Electro-hydraulic Controller or a Powerpulse Hydraulic Controller.

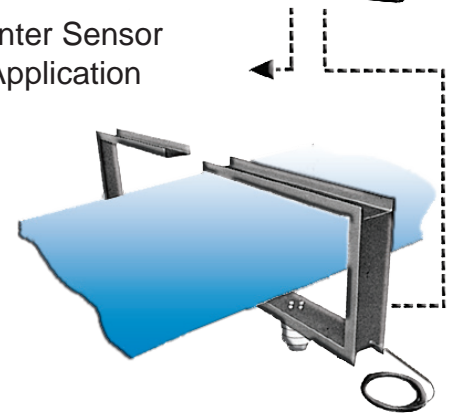
- Low Cost
- Ultra Low Maintenance

GPE 33130D

with

GPE 31611

Capacitance Center Sensor
in Centerguide Application

**How to Order****Specify:**

- 1. Model 31611 Capacitance Centerguide Sensor**
(includes two sensors - C-Frame Option)
(includes two pairs of sensors - Separate Channel Option)
- 2. Length and Type:**
 - C-Frame - 18" Length (20" Max. Width Change)
 - C-Frame - 36" Length (56" Max. Width Change)
 - Separate Channel - 18" Length (24" Max. Width Change)
 - Separate Channel - 36" Length (60" Max. Width Change)
- 3. Model 33130D Capacitance Centerguide Controller**
(Controller must be ordered with sensor)
- 4. Accessories as Required:** Strip Deviation Meter,
Remote Bias Potentiometer.

■ Reliability

Operates in dirty and high-temperature environments with little or no maintenance.

■ Positive

Sensor operates into a high-frequency tuned circuit which rejects all other frequencies.

■ Accuracy

Less than $\pm 1/8$ " per 6" of strip width change when adjusted in accordance with instructions.

■ Rugged Construction

Heavy-duty aluminum channel construction for sensor makes it virtually indestructible.

■ Simple Installation

The sensors are pre-wired with coaxial cable and only terminal connection to model 33130 Controller is required.

■ Simple Calibration

No adjustment made at sensor. Only two controller adjustments necessary for sensor operation.

■ Completely Automatic

Sensors continuously scan the entire span of strip width, eliminating operator adjustments for width changes.

Specifications

Sensor

Input	28 volts RMS at 165 K Hz from Model 33130 Controller
Output	Variable capacitance signal to Model 33130 Controller
Sensitivity	.06 pf per/in. of lateral strip shift for 18" sensor gap. Separate mounted sensor Inversely proportional to gap.
Centerline Shift	Less than $\pm 1/8"$ per 6" of width change and 10° F ambient temperature change when properly adjusted.
Ambient Temperature Range	Minus 50° F to 200° F
Electrical Connections	40 feet coaxial cable provided for each sensor.
Construction	
C-Frame	6" wide aluminum channel mounted on high-strength post-type insulator.
Separate Channel	6" wide aluminum channel. Each channel mounted on high-strength post-type Insulator.
Weight	
	C-Frame - 55 lbs. (18" sensor) C-Frame - 80 lbs. (36" sensor) Separate Channel - 20 lbs. (18" sensor) Separate Channel - 25 lbs. (36" sensor)

Input Signal

Capacitance change from sensors:
Minimum - 650 pf; Maximum - 900 pf

Outputs

0 to ± 10 VDC Into 250 ohms minimum
(Proportional Speed Floating - PSF)

Powerpulse

On-Off 105 VDC into 600 ohms minimum
(Predictive Position Feedback - PPF)

On-off 105VDC into 600 ohms minimum (Two-Speed Floating - TSF)

Electrohydraulic

+10, 0 or -10 VDC Into 250 ohms (Predictive Position Feedback- PPF)

Detection Sensitivity

Nominal 80 mv/pf rectified from tuned circuit. Equivalent to 50 mv/in. of lateral strip movement of sensor.

Frequency Response

0-40Hz.

Gain

Basic DC amplifier is adjustable in two ranges from 4 to 4000. (This is equivalent to 0.2 volts per/in. to 200 volts per/in. when operating from sensor.)

Ambient Temperature

+32°F to 120°F; 10 - 95%

Indicator

10-0-10 volt output meter.

Construction

12" x 14" JIC enclosure

Weight

25 lbs.

Connection

1" threaded conduit

Outputs for Manual Operation

Electrohydraulic Controller ± 15 VDC, 150 ohms minimum load resistance

Powerpulse Controller 105 VDC, 600 ohms minimum load resistance

Output for Remote Bias

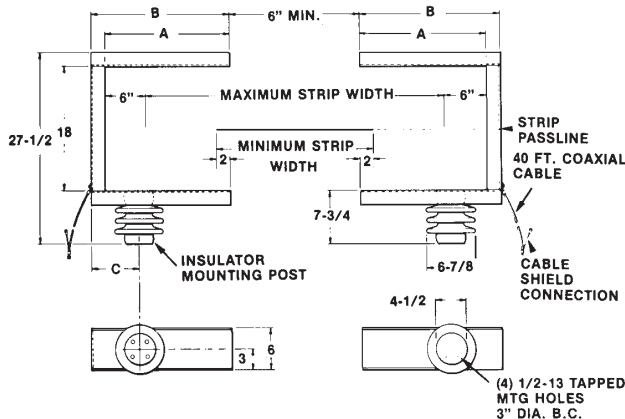
± 6.2 VDC, regulated, 50K ohms load

Controller

Input Power	117 VAC, $\pm 10\%$, 50/60 Hz, 70 VA (Electrohydraulic Controller) 117 VAC, $\pm 10\%$, 50/60 Hz, 150 VA (Powerpulse Controller)
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Outline Dimensions

C-Frame Sensor
Options (01) and (02)

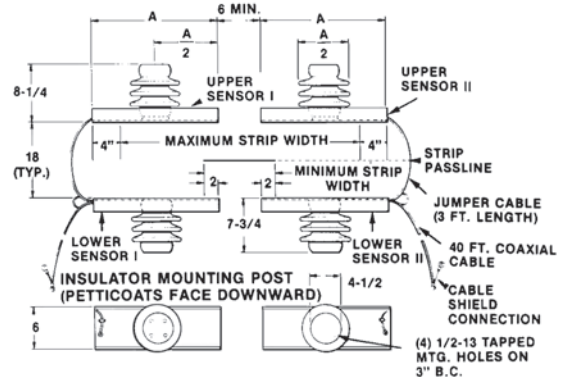


SENSOR	DIMENSIONS			
	A	B	C	D*
C-Frame				
31611-01	18	19-15/16	7	20
31611-02	36	37-15/16	15-7/16	56

NOTE:
For best performance keep all moving objects 3 feet from sensors, unless shields are provided.

*Maximum Strip Width = Minimum Strip Width + "D".

Separate Channel Sensor
Options (03) and (04)



SENSOR	DIMENSIONS	
	A	D*
Separate Channel		
31611-03	18	24
31611-04	36	60

NOTE:
For best performance keep all moving objects one foot from sensors, unless shields are provided.

*Maximum Strip Width = Minimum Strip Width + "D".