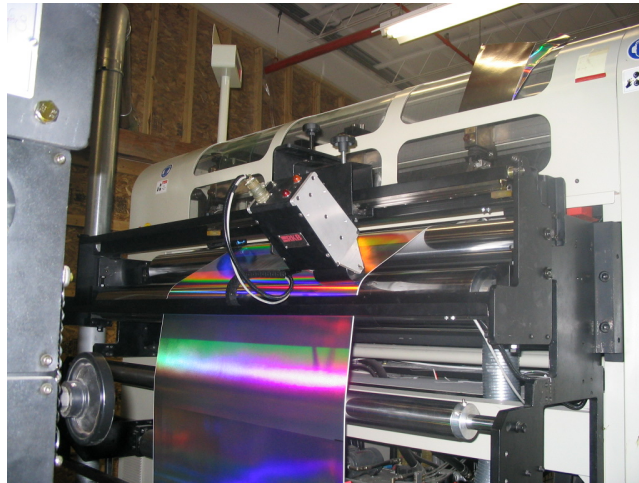


RK BTM **OPTOELECTRONICS**

MODEL 1032C SPLICE DETECTION SYSTEM



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Model 1032C Splice Detection Instruction Manual

Drawings

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1.0 Application of the 1032C™ Splice Detector

The Model 1032C Splice Detector is a self contained unit designed to detect the presence of splices such as mill splices, butt splices, and overlap splices in moving webs of metallic material (*figure 1*). The unit is designed to monitor material of various thicknesses for processing splices and to report by an alarm function to operational staff the presence of splices.

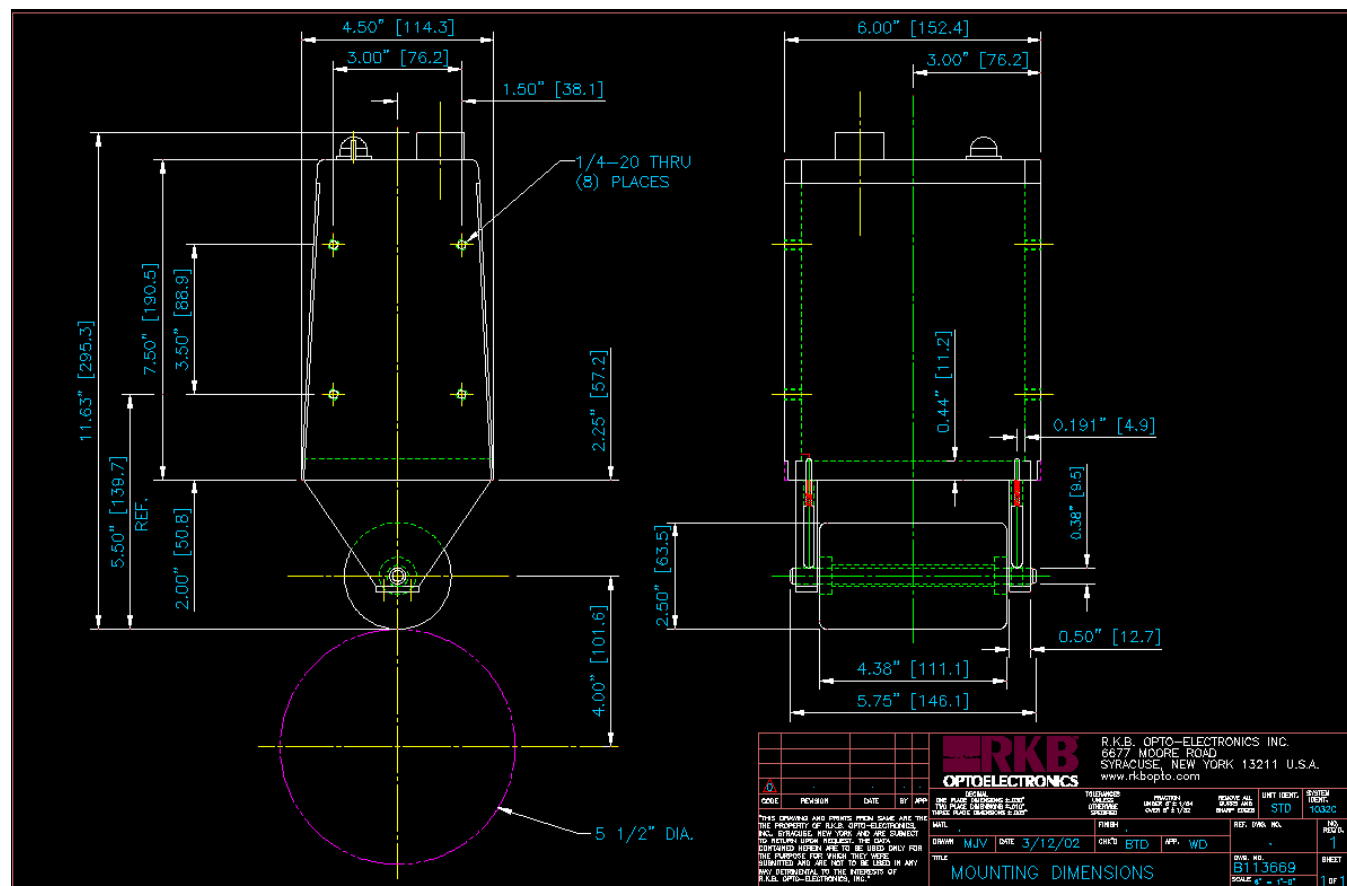


Figure 1 – Assembly Drawing; Model 1032C

No adjustments or calibration are required when the type of web or caliper of material is changed the unit automatically ***“Adjusts Itself”*** to the new condition or conditions.

The 1032C will operate reliably at web speeds up to 1200 fpm or those commonly found in most conversion, laminating, slitting, printing, and sheeting processes. The 1032C can be utilized to detect and inform operational staff in printing operations which help prevent blanket damage, supercalender operations which help prevent damage to the soft (filled) rolls, coating operations which help prevent web breaks and damage to the coating station, embossing operations, and any other processes where the product quality or process thereof can be significantly affected. Special splice marking are not required and the operation is unaffected by printed material.

A very high degree of long-term stability is built into each and every 1032C unit through the use of top quality components that are carefully matched and aged. An occasional calibration check and simple control adjustment will ensure continuous reliability and performance.

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2.0 THEORY OF OPERATION

The Model 1032C uses resistive technology to monitor the material and subsequent thickness changes incurred when splices are present. Two proprietary resistive sensing units are contained within the sensing aperture of the device adjacent to one another. Both sensing units monitor the web flow at the same time.

Splices change the overall thickness of the material across the entire web being monitored. As a splice passes through the aperture of the splice detector, the two resistive sensing units make contact at the same time on both sides of the sensing aperture thus initiating a signal through the unit to the amplifier module. When the values of the two sensing units are the same, a proprietary circuit will output a defect fault signal indicating the passing of a splice. Because this detection is performed on by initiating two resistive sensing units at the exact same time, changes in changes in product density, the presence of lumps, basis weight, moisture and other properties that affect the may affect the areas of the material will not cause false signals (*figure 2*).

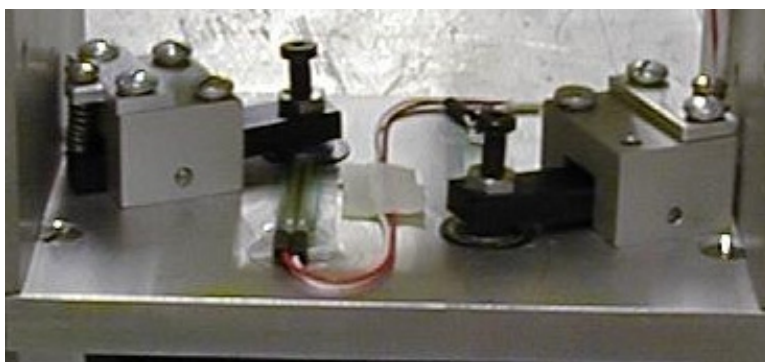


Figure 2 – Resistive Plate Assembly

3.0 INSTALLATION OF THE MODEL 1032C

The complete unit is contained within a housing approximately 6.0" (152mm) X 11.63" (295mm) X 4.5" (114mm) (*figure 3*). Four mounting holes, #1/4 - 20, are located on both sides of the unit. The unit can be installed in the center of the web path or on the edge of the material. The unit must be installed over a fairly smooth, straight roll due to the low-pressure contact roller required to initiate the resistive sensing units. This configuration creates an aperture for the web or webs being processed to pass through.

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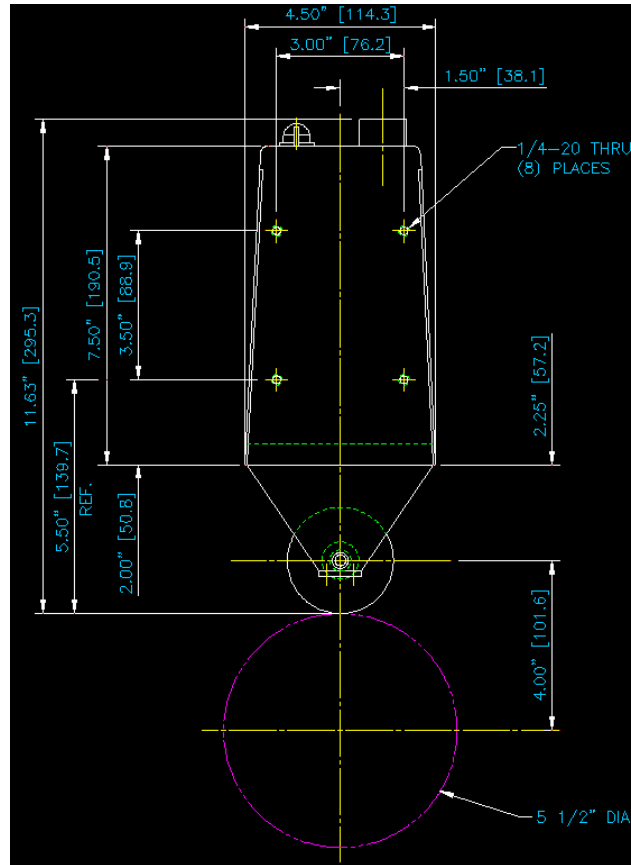


Figure 3 – Model 1032C Dimensions

A. MECHANICAL INSTALLATION:

Please refer to the enclosed diagrams and drawings for outline dimensions of the Model 1032C.

1. The Model 1032C should be mounted in an arrangement center of web directly perpendicular to the curvature of a clean, smooth, and straight roll. The roll must be polished steel or aluminum (no rubber, plastic or bowed rolls). The contact roll of the unit should be placed so it is contacting the production roll by use of gravity. Do not press down on the unit prior to or during mounting. The production roll should be free of excess vibration.
2. Position the Model 1032C against a smooth straight roll so that the web will pass in between the pressure roller of the splice detection unit and the machine roll of the material processing equipment.

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B. ELECTRICAL INSTALLATION *(figure 4)*.

1. Input Power: For installations where 110/120 VAC is available, the input power is to be connected to the receptacle (J1) as follows:

EARTH	PIN C
110/120 VAC NEUTRAL	PIN D
110/120 VAC HOT	PIN E

2. Input Power: For installations where 220/240 VAC, single phase is available, input power is to be connected to the receptacle (J1) as follows:

EARTH	PIN C
220/240 VAC HOT	PIN E
220/240 VAC NEUTRAL	PIN H

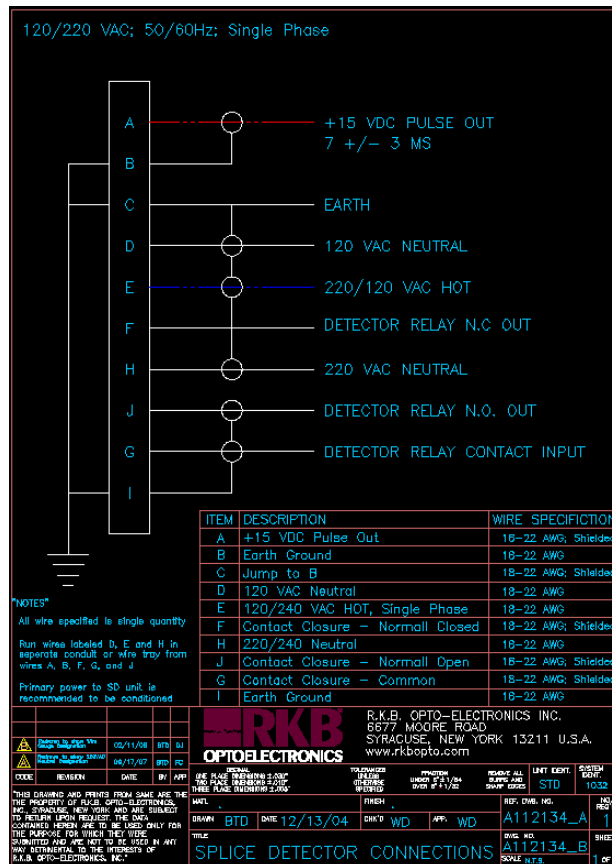


Figure 4 – Model 1032C Cabling Diagram

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2. Power to the unit should be **CONDITIONED**. It is recommended that the SOLA power conditioner or similar unit in performance be used in this application. Power and signal wires to the unit should be run separately from other equipment power, especially *motors*. All earth grounds to the unit must come from the same source.
3. Signal Output-Contact Closure: Two dry contact closures are provided on the connector receptacle (J1). A normally open contact is located across pins G & J and is closed when a splice is detected. A normally closed contact is located across pins G & F and is opened when a splice is detected. All contacts are rated for 0.1 amps at 110 VAC or 0.05 amps at 220 VAC. The alarm **ON** period is set for approximately one second.
4. Signal Output-Digital Pulse: A 10ms (+/- 3), 15 VDC, positive going pulse is provided on connector receptacle (J1) at pin A. The source impedance of this pulse is 500 ohms. For special applications, the voltage level of this pulse can be easily lowered and its duration changed. R.K.B. OPTO-ELECTRONICS, INCORPORATED must be contacted to modify the output pulse length and voltage. (****NOTE**** *changing or experimenting with circuitry will void warranty of equipment*).
5. Indicator Lamps: Indicator lamps are provided on the Model 1032C. These lamps are located on the top of the unit. One lamp is red which indicates that the unit is **ON** and the other lamp is amber that indicates the passage of a splice.

C. PRECAUTIONARY MEASURES FOR INSTALLATION

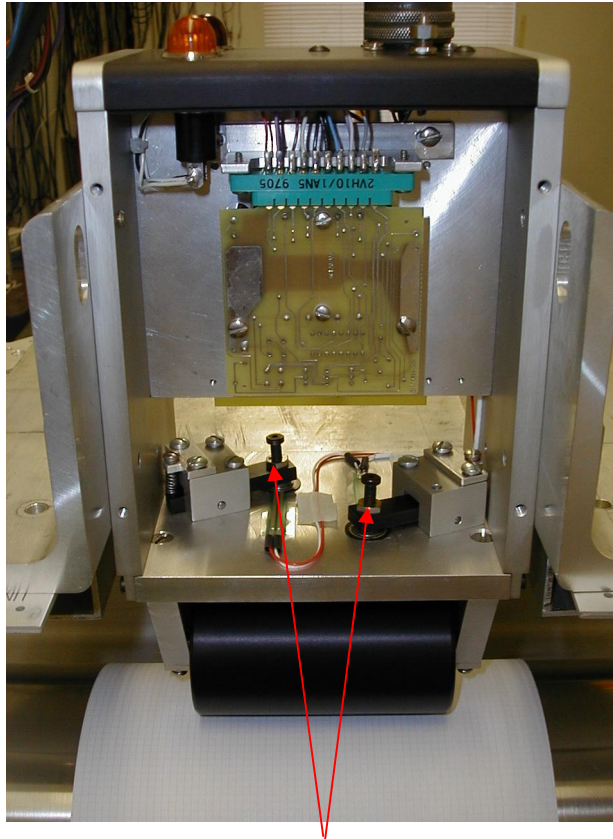
1. Fluted Rolls: When the Model 1032C is installed near fluted rolls, the resultant whipping and beating may cause excessive vibration itself which can help generate false signals.
2. Mounting: It is essential that the mounting assembly is rigid and the unit is well anchored to the assembly.
3. Disassembly: As with many precision instruments, successful operation of the Model 1032C is dependent, in part, on mechanical stability and tolerances held during the assembly of the device. For this reason, the unit should not be opened or disassembled in any way. **IF DISASSEMBLY IS UNAVOIDABLE, IT SHOULD BE PERFORMED BY AN EXPERIENCED ELECTRONIC OR INSTRUMENT TECHNICIAN, WITH THE UTMOST CARE FOR VIBRATION, DIRT, MOISTURE AND REASSEMBLY.** Proper operations may be difficult to achieve after disassembly without proper test facilities.

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4.0 ADJUSTMENTS AND MAINTENANCE

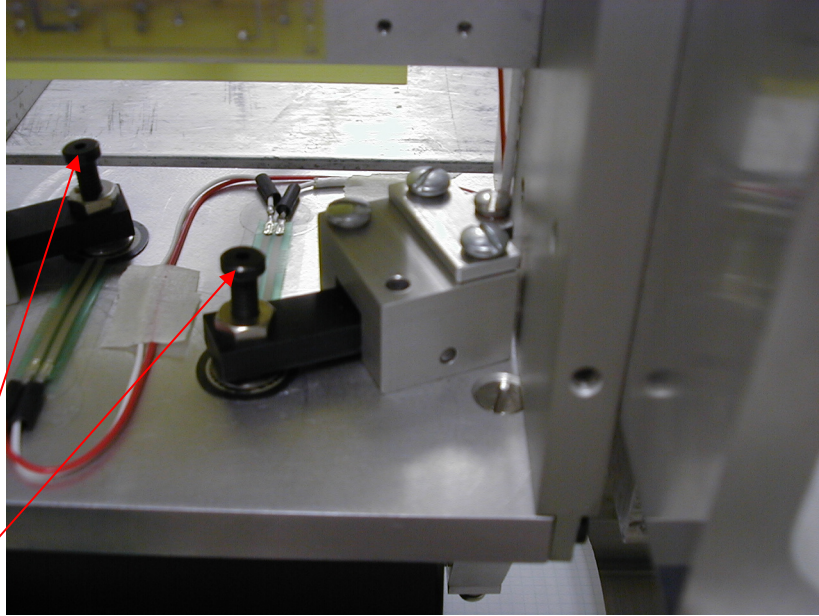
A. SENSITIVITY ADJUSTMENT

The sensitivity of the Model 1032C is set at the factory and should not need to be adjusted when received. If it becomes necessary to reset the sensitivity, the sensitivity of the Model 1032C may be adjusted by adjusting the resistive screw contacts located inside the unit just above the resistive sensing units. This screw is generally set and locked down at the factory, however, over time; it may require a slight adjustment. It is recommended that the sensitivity be set only as high as necessary to detect a splice in the material monitored. The proper sensitivity may be determined by the trial and error method, manually passing the maximum number of clean sheets to be monitored plus one sheet with a splice.

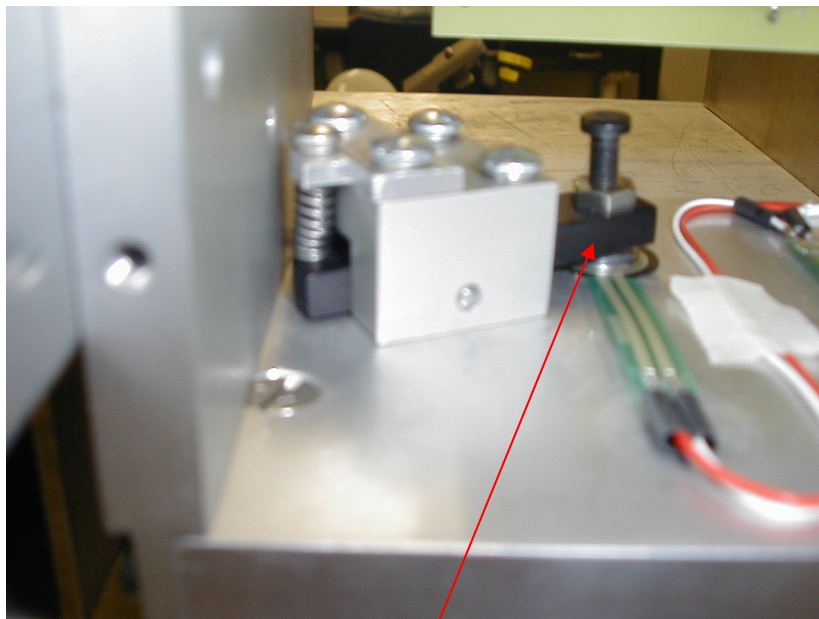


Inside of unit; arrows indicate the two adjustments screws

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Adjust screws counterclockwise to loosen, clockwise to tighten, do not over adjust.



Close up of contact pad assembly

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B. GENERAL MAINTENANCE

1. Periodically check the condition of the roll for wear from the web. Change the roll when required.

SPARE PARTS LIST

ITEM #	RKB #	DESCRIPTION
0001	N/A	Detector, Splice; Model 1032C Complete
0002	402214	Connector assembly w/cable clamp (MIL)
0003	400854	Lens, Amber
0004	400861	Holder, Lamp
0005	400855	Lens, Red
0006	401794	Module, Power Supply
0007	401529	Module, Amplifier
0008	404034	Connector Assembly 18P (Military)
0009	400210	Connector, Edge
0010	400194	Lamp (NE-51H)
0011	401379	Potentiometer

*** When ordering **SPARES**, please include the **SERIAL NUMBER** of the splice detector that is engraved on the unit(s). If you need to order additional units or replace an existing unit, please call a sales representative for current pricing on the Model 1032C Splice Detector. Phone number is (315) 455-6636, facsimile number is (315) 455-8216 and email is service@rkopto.com.

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