

LEVEL-TEK MODEL 318A

 **Certified**
(Some models)



Probe shown for illustration only.
Must be ordered separately.

GENERAL DESCRIPTION

The Robertshaw Model 318A Level-Tek is an on/off, all solid state RF control instrument for detecting predetermined product level changes in tanks, sumps, silos and other vessels or containers. The Model 318A is capable of detecting a variety of products, including liquids, powders, granular, lump and flake materials. The product can be conductive or non-conductive.

The Model 318A is self-contained and uses integrated circuits to ensure long term stability, reliability and reduced maintenance. Control signals are provided through the contacts of a DPDT relay. The instrument features adjustable time-delay which is selective for time-delay on "Pull-In," "Drop-Out" or both. The unit is available with any of three different supply voltages.

PRICIPLE OF OPERATION

The standard Model 318A Level-Tek mounts directly on a Robertshaw probe assembly, which is installed in the tank or other container. A remote mount option (maximum 15 feet) is available. The Level-Tek unit senses changes in product level as a function of the "true" capacitance change between the probe element and the wall of the container.

With the optional "Short-Stop" circuitry and probe, the Model 318A is able to accurately sense level changes even when the probe is coated with sticky or viscous materials. The resistance part of the probe circuit (caused by coating) is ignored, yielding a "true" capacitance signal directly proportional to real level.

FEATURES AND BENEFITS

- **Versatile - Suits Many Applications-**
Meets explosion-proof and weather-tight requirements. Choice of supply voltages. Adjustable time delay is standard.
- **All Solid-State Construction -**
Use of integrated circuits insures long-term stability, reliability, and reduced maintenance.
- **Simplified Installation -**
Self-contained unit may be oriented in any position. Mounts directly on installed Robertshaw Probe Assembly, connected to probe element by rugged disconnect pin.
- **Field Selectable Operational Modes -**
High or low fail-safe operation established by means of mode switches.
- **Ease of Calibration and Adjustment -**
Built-in solid-state light aids in calibration (no external meter required).
- **Convenient Design for Wiring and Maintenance -**
Plug-in chassis assembly provides easy access to wiring and terminal board. Heavy duty relay.
- **Short-Stop Option-**
Ignores product build-up/coating on probe.
- **Remount Mount Option-**
(15 feet maximum from probe.)
- **CSA Certified-**
(120 VAC, non-Short-Stop version only.)

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SPECIFICATIONS

ENVIRONMENTAL:

Intrinsic Safety:

Models 318A-B1 and 318A-B1-E are CSA Certified with an intrinsically safe probe input circuit for Class I, Div. 1, Group C & D; Class II, Div. 1, Group E, F & G hazardous areas when used with Model 702, 728, 729, 736, 738, 739, 740 or 741 probe. Safety barrier not required.

Storage Temperature Limits	-55° F to +225° F (-48° C to +107° C)
Operating Temperature Limits	-40° F to +160° F (-40° C to +70° C)
Vibration Limits	2 g's to 100 Hz
Operating Humidity Limits	0 to 95% RH
Weight	3.5 lbs. (1.6 kg)
Shipping Weight	5 lbs. (2.3 kg)

PERFORMANCE:

Temperature Coefficient	Control point, 0.01 pF/C°
Response Time (Time Delay)	Adjustable, 0.5 to 30 seconds

ELECTRICAL:

Supply Voltage:

Standard	120 VAC ± 10%, 50/60 Hz
Optional	18 to 30 VDC
Optional	240 VAC ± 10%, 50/60 Hz

Supply Power	8 watts, 8 VA maximum
Control Range (zero adjustment)260 pF max.
Differential (dead-band)	Fixed, 0.2 pF

Control Relay:

Form	DPDT
Contact Rating	5 A @ 28 VDC; 5 A @ 120/240 VAC, non-inductive;

ENCLOSURE:

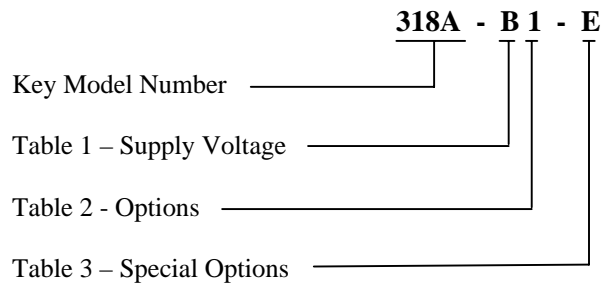
Standard	Explosion proof, cast aluminum, painted with blue polyurethane enamel. Suitable for Class I, Division 1, Group C & D; Class II, Division 1, Group E, F & G hazardous areas. Dust tight CSA Enclosure 5. Meets NEMA 4.
Optional	Explosion proof, cast aluminum, painted with gray epoxy enamel. Suitable for Class I, Division 1, Group C & D; Class II, Division 1, Group E, F & G hazardous areas. Dust tight CSA Enclosure 5. Meets NEMA 4X.

ORDERING INFORMATION

STANDARD MODEL* 318A-B1

OPTIONAL MODELS

Select from Tables.



Key Model Number

Designation	Description
*318A	Capacitance-actuated On-Off Level Control. Explosion proof, weather tight enclosure. CSA Certified intrinsically safe probe input circuit (120 VAC std version only). DPDT relay, fixed differential (dead-band) and adjustable time delay. Unit mounts directly on sensing probe. Probe not included.

Table 1 - Supply Voltage

Designation	Description
A	18 to 30 VDC
*B	120 VAC ± 10%, 50/60 Hz
C	240 VAC ± 10%, 50/60 Hz

Table 2 – Options

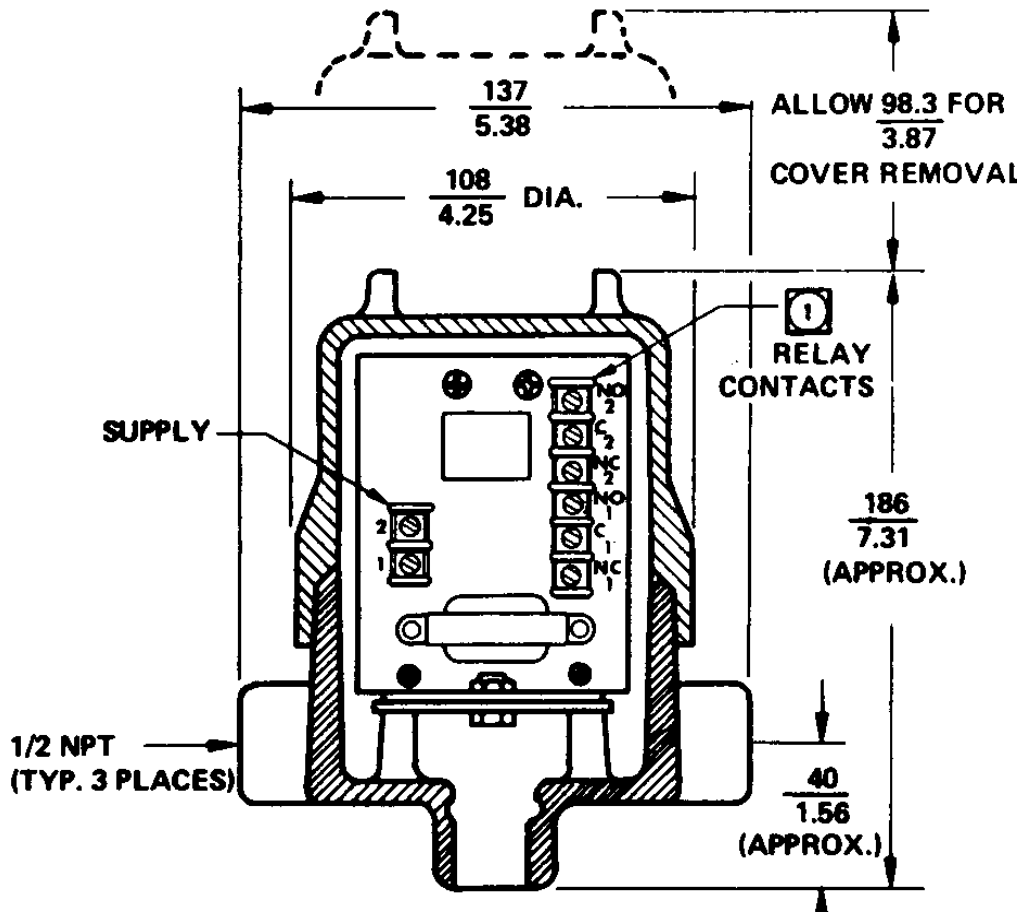
Designation	Description
*1	No options. (Non-Short-Stop version)
2	Short-Stop

Table 3 – Special Options

Designation	Description
*Omit	No special options. Enclosure painted with blue polyurethane enamel. Meets NEMA 4.
**E	Enclosure painted with gray epoxy enamel. Meets NEMA 4X.

** Requires Short-Stop probe (727A or 732A).

DIMENSIONS



CUSTOMER CONNECTIONS

RELAY CONTACTS*	
TERMINAL	DESCRIPTION
N.C. 1	Normally Closed No. 1
C 1	Common No. 1
N.O. 1	Normally Open No. 1
N.C. 2	Normally Closed No. 2
C 2	Common No. 2
N.O. 2	Normally Open No. 2

* Control relay contact designations are shown with relay in the de-energized condition. The relay is normally energized and becomes de-energized when level or process reaches the control point.

SUPPLY VOLTAGE (See Rating Plate)	
TERMINAL	DESCRIPTION
GND	Ground
NEU (+)	Power Input (supply voltage)
HOT (-)	

ACCESSORIES

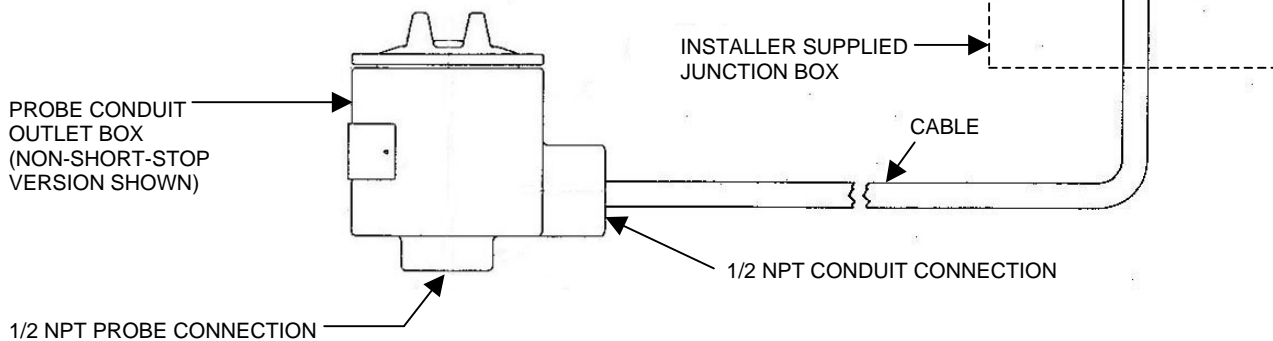
COOLING EXTENSIONS (not shown)

If the temperature within a vessel can cause the electronics in the model 318A to be subjected to a temperature greater than its rating, consideration should be given to using a cooling extension. Refer to the Product Specification sheet for cooling extensions for more information. Cooling extensions are not available for the Short-Stop version of the model 318A.

REMOTE MOUNTING CABLES

If a lack of head room above the model 318A may prevent cover removal, or if a high ambient temperature at the vessel will subject the model 318A to a temperature greater than its rating, the model 318A may be remote mounted with the use of a special cable.

The remote mounting cable consists of a stainless steel gland which screws into the model 318A, a Teflon insulated cable rated for 350° F (177° C), and an aluminum conduit outlet box for cable termination of the cable at the probe. Cable length should be kept as short as possible. Maximum length is 15 feet (4.5 m). The remote mounting cables are not CSA Certified and their use may void the explosion proof rating of the instrument.



CABLES FOR NON-SHORT STOP 318A

PART NUMBER	DESCRIPTION
032KX050-XX*	Coaxial cable with conduit outlet box. Meets NEMA 4.
032KX080-XX*	Coaxial cable with conduit outlet box painted with a gray epoxy enamel. Meets NEMA 4X.

CABLES FOR SHORT-STOP 318A

PART NUMBER	DESCRIPTION
032KY040-XX*	Triaxial cable with conduit outlet box. Meets NEMA 4.
032KY060-XX*	Triaxial cable with conduit outlet box painted with a gray epoxy enamel. Meets NEMA 4X.

* Replace XX with length in feet.
Maximum length 15 feet (4.5 m)



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