



## LEVEL-TEK MODEL 5318B

### GENERAL DESCRIPTION

The Robertshaw Model 5318B Level-Tek is a RF capacitance point (On/Off) level switch, which employs all solid state electronics for detecting predetermined product level changes in tanks, sumps, silos and other vessels or containers. The Model 5318B is capable of detecting a wide variety of products, including liquids, powders, granular, lump and flake materials. The product can be either conductive or non-conductive.

The Model 5318B is self-contained and uses microprocessor based digital 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-delays that are individually adjustable for both "Alarm" and "Return-to-Normal". There are either fixed or adjustable differential settings available. The unit is available for either AC or DC supply voltages.

### PRICIPLE OF OPERATION

The standard Model 5318B Level-Tek mounts directly on a Robertshaw Probe Assembly, which is installed in the tank or other container. A remote mount capability (maximum 15 feet) exists. 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.

Instrument setup and calibration are done using integral pushbuttons and a 2-line by 8-character LCD display. Setpoint calibration can be done without requiring level changes in the vessel.

The primary measuring circuit employs Robertshaw's patented Pulse Frequency Modulation, PFM, technology. The 12 VDC and 24 VDC rated units accept voltages from 9 to 18V and 18 to 36V, respectively, while the universal input AC powered unit accepts 100 to 240V. No jumper, or switch, changes are required.



Probe shown for illustration only.  
Must be ordered separately.

### FEATURES AND BENEFITS

- **Versatile - Suits Many Applications-**  
Enclosure meets explosion-proof and weather-tight requirements. Choice of supply voltages. Adjustable time delays are standard.
- **All Solid-State Construction -**  
Use of digital solid-state 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, and convenient, disconnect pin.
- **Field Selectable Operational Modes -**  
High Level Fail-Safe, HLFS, or Low Level Fail-Safe, LLFS, is user field selectable.
- **Ease of Calibration and Adjustment -**  
Built-in LCD display 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.
- **Remote Mount Capability-**  
(Up to 15 feet from the probe.)
- **ETL<sub>us</sub> Approvals**
- **RoHS Compliant**

**SPECIFICATIONS**

**ENVIRONMENTAL:**

**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  
**Time Delay:**  
**On ALARM**..... Adjustable, 0 to 60 seconds  
**On RETURN**..... Adjustable, 0 to 60 seconds

**ELECTRICAL:**

**Supply Voltage:**  
**Standard** .....100 to 240 VAC, 50/60 Hz  
**Optional** ..... 18 to 36 VDC  
 ..... 9 to 18 VDC  
**Supply Power** .....5 watts, 5 VA maximum  
**Control Ranges** .....250, 500 & 1,000 pF max  
**Differential (dead-band):**  
**ON/OFF (Adjustable)**... 0.2Pf to 100% of Control Range  
**ALARM++ (Fixed)** ..... 1.0 pF  
**ALARM+ (Fixed)** ..... 0.2 pF  
**ALARM- (Fixed)** ..... 0.2 pF  
**ALARM- - (Fixed)** ..... 1.0 pF  
**CONTROL (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 Enclosure 4.  
**Optional** .....Same as above, except  
 painted with gray epoxy enamel.  
 Also meets Enclosure 4X.

**APPROVAL (Standards):**

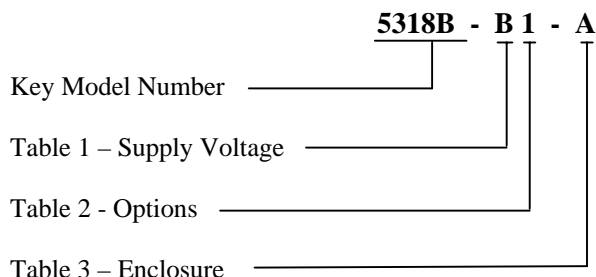
**UL**.....STD 61010-1  
**CAN/CSA**..... C22.1 No. 61010-1  
**RoHS Compliance**..... EU Directive 2002/95/EC

**ORDERING INFORMATION**

**STANDARD MODEL\* 5318B-B1-A**

**OPTIONAL MODELS**

Select from Tables.



**Key Model Number**

Designation	Description
*5318B	Capacitance-actuated On-Off Level Control. DPDT relay, fixed & adjustable differential (dead-band) and adjustable time delays. Explosion proof, weather tight enclosure. Unit mounts directly on sensing probe. Probe not included.

**Table 1 - Supply Voltage**

Designation	Description
A	18 to 36 VDC
*B	100 to 240VAC, 47 to 440 Hz, 50/ 60 Hz Nominal
C	9 to 18 VDC

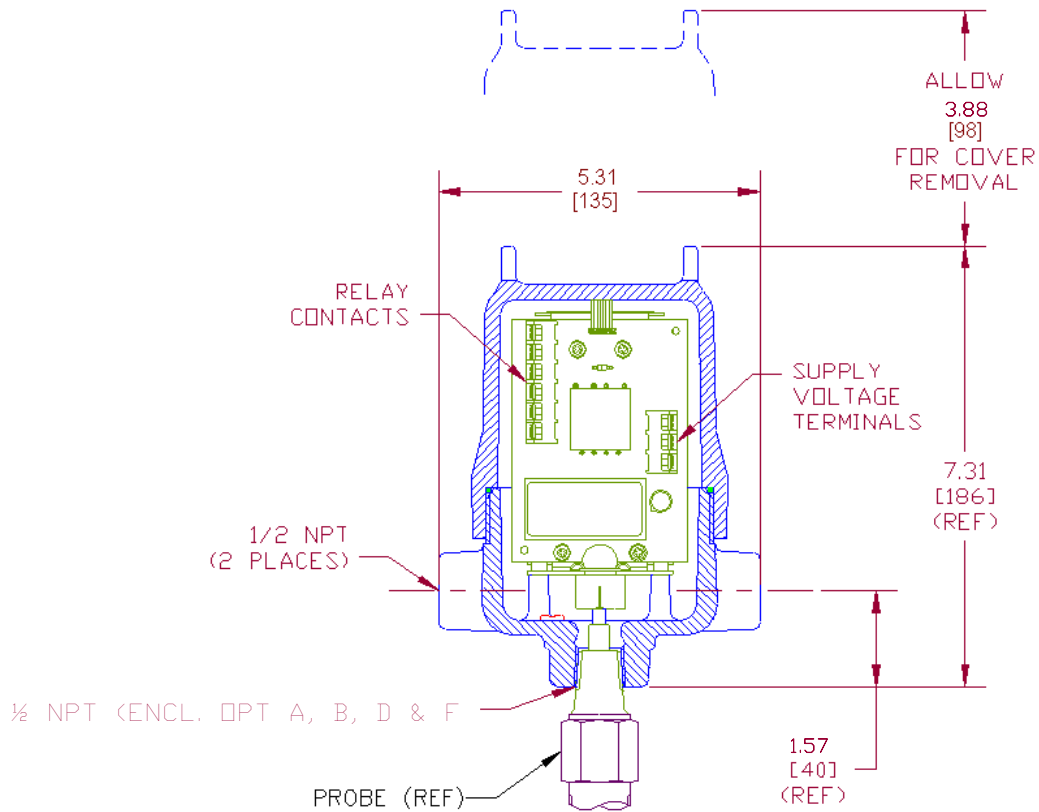
**Table 2 – Options**

Designation	Description
*1	No options.
2	Special, Lower Measurement Frequency (Consult factory)
3	Special, Custom Calibration (Consult factory)

**Table 3 – Enclosure**

Designation	Description
*A	½” NPT Probe Hub, Nitro Blue
B	¾” NPT Probe Hub, Nitro Blue
D	½” NPT Probe Hub, Gray Epoxy
E	¾” NPT Probe Hub, Gray Epoxy

**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

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

\* 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.

## ACCESSORIES

### COOLING EXTENSIONS (not shown)

If the temperature within a vessel can cause the electronics in the Model 5318B 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.

### REMOTE MOUNTING CABLES

If a lack of head room above the model 5318B may prevent cover removal, or if a high ambient temperature at the vessel will subject the Model 5318B to a temperature greater than its rating, the Model 5318B 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 5318B, 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 recommended length is 15 feet (4.5 m). Consult the factory before using longer lengths. The remote mounting cables are not Agency certified and their use may void the explosion proof rating of the instrument enclosure.

#### CABLES FOR REMOTE MOUNTING THE 5318B

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.

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



Robertshaw Industrial Products  
1602 Mustang Drive  
Maryville, Tennessee 37801  
Phone: (865) 981-3100 Fax: (865) 981-3168  
<http://www.robertshawindustrial.com>

Q-4178 (7/07)

Printed in the U.S.A.