

Dry Contact Module Model C-41



- Companion to the Model 942
Adds dry contact functions
- Simulate dry contacts
Replaces signal contacts in powered circuits
- Measure dry contacts
Read unpowered contacts

General description

Extend the usefulness of your Model 942 Frequency Calibrator to measure and simulate a wide variety of relays, mechanical pickups and other dry contact frequency devices.

Simulate dry contacts
Calibrate inputs to your flowmeters, totalizers, SCADA, telemetry systems, supervisory control systems and other frequency control devices using the Model 942 with the Model C-41 to simulate the remote sensor. Many of these systems provide an excitation current or voltage which the sensor interrupts to generate the frequency signal. Coupled with the Model 942 Frequency Calibrator, the Model C-41 simulates the contacts of these sensors to calibrate these devices from 1 Count-per-hour to 5 KHz.

Read dry contacts
Check all your relays, mechanical contacts, cam driven switches, photoconductive cells, and momentary contact switches. The Model C-41 supplies an excitation current which allows the Model 942 to read your dry contacts from 10 Counts-per-hour up to 2 KHz. An adjustable filter on the Model C-41 combined with the trigger level adjustment of the Model 942 allow a wide variety of electronic and mechanical contacts to be measured.

Filter contact bounce
Many mechanical contacts (relays, switches, etc.) bounce when they are closed. This causes a ringing effect on the waveform that is being generated. The Model C-41 has an adjustable circuit that filters this effect and allows the Model 942 Frequency Calibrator to measure the correct frequency.

Specifications

Read dry contacts

Output voltage: 9 VDC with fresh battery
Output current: 6 mA, nominal
Maximum frequency: > 2 KHz with no contact bounce
Minimum pulse width: 250 microseconds
Maximum contact resistance: 500 ohms
Filter adjustment: Attenuates at > 5 KHz with minimum filter (CCW),
at > 500 Hz with maximum filter (CW)

Simulate dry contacts

Risetime: <1microsecond @ 12V peak-to-peak
Maximum frequency: > 5 KHz
Contact resistance:
Contacts closed: 24 ohms, Maximum
Contacts open: 10¹⁰ ohms, Minimum
Maximum load current: 130 mA

Maximum voltage: ±300 Volts peak
Maximum wattage: 400 milliwatts
Short circuit duration: Infinite

General

Batteries: Single 9V battery (Alkaline supplied and recommended)
Battery life: Nominal 300 hours
Low battery: If the LED doesn't light or pulse the battery needs to be replaced.
Voltage protection: Protected against misconnection to 120 volts AC/DC without fuses for 30 seconds
Operating temperature range: -5 to +140°F (-20 to +60°C)
Storage temperature range: -13 to +149°F (-25 to +65°C)
Relative humidity: 10 to 90%, non-condensing for 24 hours
Overall size: 4 x 21/8 x 27/16 inches (102 x 54 x 62 mm)
Weight: 7oz (0.2 kg)

Operating instructions

Simulate dry contacts

- 1) Set the 942 to SOURCE, Waveform to Zero Based Square Wave and Output Level to >6 Volts
- 2) Connect the Module to the Model 942
- 3) Switch the module to SOURCE
- 4) Disconnect the receiver from the contacts
- 5) Connect the module to the receiver
- 6) Select the correct frequency range on the 942

Read dry contacts

- 1) Set the Model 942 to READ, Attenuator to x1 and set the Trigger Level to 5 Volts
- 2) Connect the module to the Model 942
- 3) Switch the module to READ
- 4) Disconnect the contacts from the circuit providing power
- 5) Connect the module to the contacts
- 6) Select the correct frequency range on the 942

Note: Noisy readings may be indicating contact bounce. See Filtering contact bounce.

Calibration

The Model C-41 Dry contact module doesn't require calibration. An annual performance check is recommended.

Note: Calibration is required of the Model 942 Frequency Calibrator which is used in conjunction with the Model C-41 Dry contact module.

Filtering contact bounce

Mechanical contacts bounce when they are closed, sending a large pulse as well as a series of smaller pulses to the measuring equipment. These small pulses can cause the measuring equipment to measure the frequency incorrectly. The Model C-41 has the ability to filter these small pulses out and measure the true frequency signal.

- 1) Set the Model 942 to READ, Attenuator to x1 and set the Trigger Level to 5 Volts
- 2) Connect the module to the Model 942
- 3) Switch the module to READ
- 4) Disconnect the contacts from the circuit providing power
- 5) Connect the module to the contacts
- 6) Select the correct frequency range on the 942
- 7) Start with the FILTER knob set at MIN (fully counter clockwise)
- 8) Slowly increase the filter until stable readings are measured on the 942.

Note: Higher frequencies need less filtering than lower frequencies. Some adjustment of the filter may be necessary as the frequency of the signal changes.

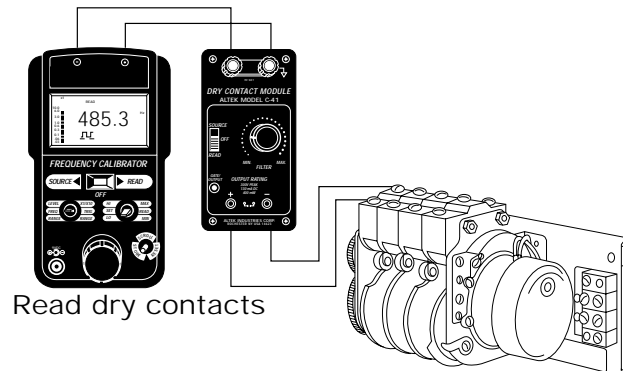
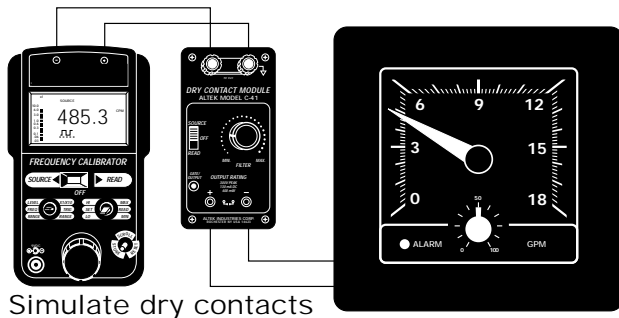
Battery check

The LED will pulse at the same rate as the simulated or measured frequency (it will appear to be constantly lit above 30 Hz). To check the battery without connecting the C-41 to any devices:

- 1) Switch the module to READ
- 2) Connect the red & black output leads together
- 3) The battery needs replacement if the LED doesn't light

Note: Remember to turn the C-41 module off when you turn off the Model 942.

Connections



Warranty

Altek products are warranted to be free from defects in material and workmanship (excluding fuses, batteries and leads) for a period of three years from the date of shipment. Warranty repairs can be obtained by returning the equipment prepaid to our factory. Products will be replaced, repaired, or adjusted at our option. *Altek gives no other warranties, including any implied warranty of fitness for a particular purpose.* Also, Altek shall not be liable for any special, indirect, incidental or consequential damages or losses arising from the sale or use of its products.

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