

TRM Sensors LLC Data Sheet

TRM Relay Unit-Type CV

Leak Detection Monitor Device with Relay Output

Product Description

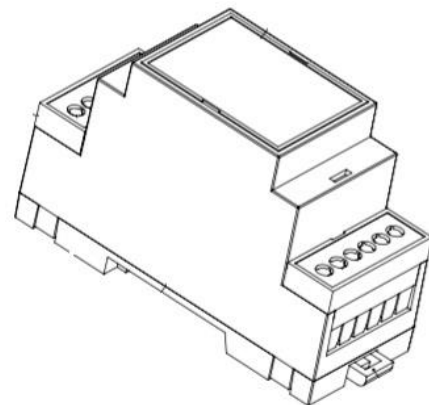
TRM Relay Unit Type-CV is a relay output device used to monitor TRM Fuel Probes, TRM Oil/Brine Probes, TRM DFS-3 sensors and certain other leak detection sensor cables and probes. Low cost and minimum footprint have been emphasized. The alarm output is provided by a single Form-C relay with Normally Open, Common and Normally Closed terminals. TRM Relay Unit Type-CV is designed to provide switching for local audible or visual alarm indicators or a logic signal for digital input cards on BMS, PCLs, RTUs and similar monitoring systems requiring a dry contact input. The relay contacts ARE NOT rated for direct control of pumps, valve solenoids or other larger electrical loads. However, the internal relay can be used to control a larger external relay or contactor, provided by the user. There are two status LEDs: green for POWER and red for ALARM. TRM Relay Unit Type-CV has two alarm threshold adjustments for hydrocarbon detection and brine detection. TRM Relay Unit Type-CV is recommend for TRM-CC (hydrocarbon only) and TRM-CB (combination hydrocarbon / brine) probes and TRM DFS-3 indoor diesel sensors.

Key Features

- Low cost / Small footprint
- Same device can be used to monitor “hydrocarbon only” or combination “hydrocarbon/brine” probes.
- Relay is activated on leak detection: hydrocarbons or brine (TRM-CB only) or if sensor probe is disconnected (Cable Break)
- User adjustable hydrocarbon and brine detection thresholds
- Status LEDs for POWER and ALARM
- Operates from 12 VDC supply
- Form-C Relay (Normally Open, Common, Normally Closed). Normally de-energized

Product Specifications

- Power Source: 10.8 VDC to 13.2 VDC (nominal 12 VDC supply +/- 10% tolerance)
- Input Current: 40 mA max.
- Weight: 2.2 oz. (63 g)
- Mounting Hardware:
 - DIN Rail – 1.43” inches of rail space
- Wire size range: 14 to 22 AWG wire
- Form-C Relay: Normally Open, Common and Normally Closed Contacts
 - Contact Rating: 0.5A @125 VAC or 1.0 A @ 24VDC
- Green LED indicates POWER on
- Red LED indicates hydrocarbon or brine LEAK DETECTION or CABLE BREAK
- User adjustable alarm threshold for hydrocarbon and brine detection
- Enclosure: Gray ABS/PC blend (UL 94 V-0 rated)
- Operating Temperature:
 - -40F to +158F (-40C to +70C)
- Dimensions:
 - DIN Rail: 1.43” x 3.55” x 2.26”



TRM Sensors LLC TRM Relay Unit Type-CV

Mounting / Power and Signal Connections / Adjustments

Mounting: Attach device to 35 mm DIN Rail, with voltage connections at top and signal inputs at bottom. The TRM Relay Unit Type-C requires 1.43" (36.5 mm) of DIN rail space

Wiring:



Figure 1. Wiring Connections - 14 AWG to 22 AWG

Sensor Connections:

TRM-CB (combination hydrocarbon/brine probe) - Connect three wires (RED, GREEN, YELLOW) per color markings on the Relay Unit

TRM-CC (hydrocarbon only probe) - Connect two wires (RED and YELLOW) per color markings on the Relay Unit. (No Connection to GRM terminal)

TRM-DFS-3U (indoor diesel sensor) - Connect only two of the three wires (RED and YELLOW) per the color markings as indicated. DO NOT CONNECT the GREEN wire (Note: Green wire is provided for direct connection to BMS, PLC or RTU when the sensor is used as a Normally Open sensor. The GREEN wire is not used when connecting the DFS-3U to the TRM Relay Unit Type-CV)

Threshold Adjustment: (TRM Relay Unit Type-CV is calibrated at the factory with thresholds appropriate for most applications)

Fuel / Oil Sensitivity: The sensor's resistance starts low and goes high when it is contacted by hydrocarbon. The Fuel / Oil Sensitivity adjustment determines the resistance level above which the sensor is deemed to be in alarm. Tall sensor probes have a higher starting resistance. If the Relay Unit is in alarm mode when the sensor is first connected, turn the Hydrocarbon Sensitivity adjustment to the right (CW) to raise the threshold until the Alarm LED is extinguished. Heavy fuels or oils cause a small and sluggish resistance change. When targeting heavy hydrocarbons turn the sensitivity adjustment to the left (CCW) until the alarm LED turns on, then turn to the right by ½ turn to extinguish the LED. **CAUTION.** Setting the threshold too close to the starting resistance may cause false alarms due to thermal fluctuations. Setting the alarm threshold too far above the starting point may cause the sensor to miss leaks of heavy hydrocarbons. Note that the sensitivity adjustment has very little influence when the targeted fuels are gasoline, jet fuel or diesel as these lighter hydrocarbons cause a rapid and large change in the sensor's resistance and the alarm threshold is crossed quickly regardless of where it has been set.

Brine Sensitivity: (Applies to TRM-CB probes only). The brine detection portion of the sensor probe starts at a high resistance value and decreases when water or brine contacts the probe. The factory setting is calibrated to ignore most fresh water (e.g. tap water, rain water, snow melt, condensation and some surface run-off). Sea water and oil field brine (produced water) have more salt than the fresh water examples and are therefore more conductive. The Brine Sensitivity adjustment establishes the resistance threshold below which the TRM Relay Unit Type-CV is deemed to be detecting brine. A good method for field calibration is to place the bottom portion of the sensor probe in a cup of local tap water at least 3" (7.5 cm) deep. If the red ALARM LED turns on, then turn the Brine Sensitivity adjustment to the left (CCW) until the ALARM LED is extinguished. (You are setting the level of conductivity that you wish to ignore). If possible, repeat the test using sea water or simulated sea water (3% salt solution by weight) and verify that the ALARM LED turns on when the probe is dipped in sea water, but stays off when dipped in fresh water. In some cases, if the local tap water or surface water has a high mineral content, it may not be possible to find a setting that ignores local 'fresh' water but still detects sea water or oil field brine. If the application calls for detection of any water, turn the Brine Sensitivity adjustment 5 turns to the right (CW) to set maximum sensitivity to any water contact.