



DMTM-100

ROTOR CREEP DETECTOR

APPLICATIONS

- Detection of slow rotor motion (creep) on generators and large electric motors with salient poles;
- Notifies automation system when the machine reaches standstill and safeguards against unexpected rotation.

FEATURES

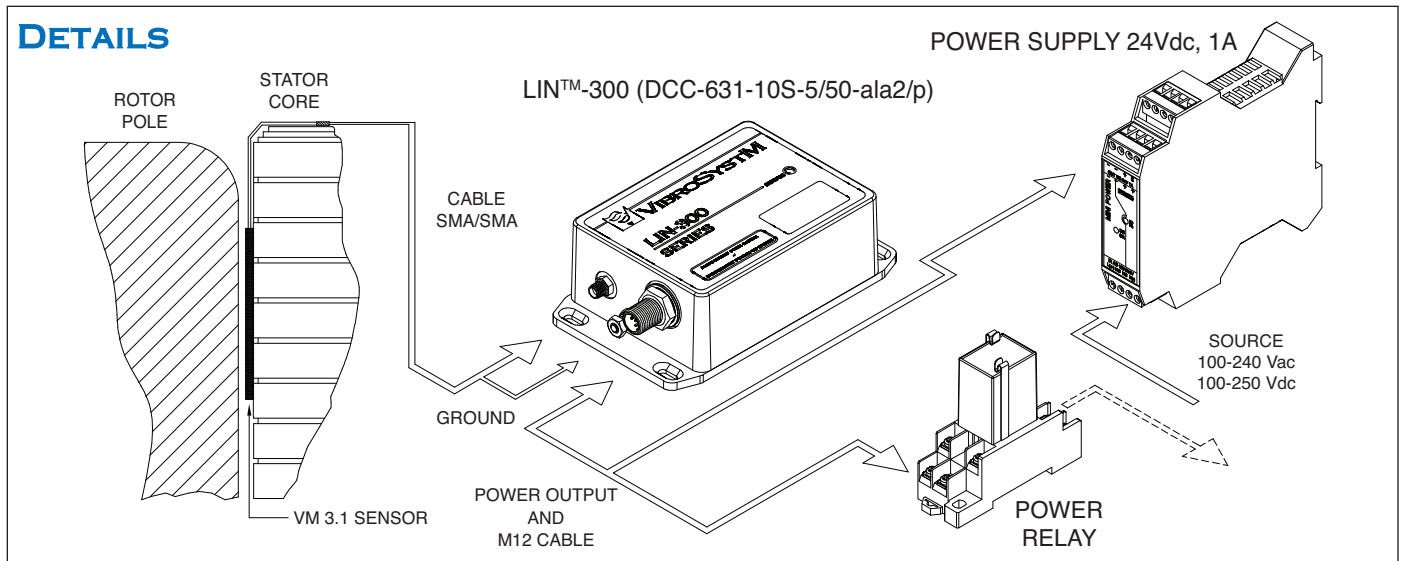
- Comprises:
 - VM 3.1 Air Gap Capacitive Sensor (noncontact, extended range: 5–50 mm/196.8–1968.5 mils)
 - DCC-631 Signal Conditioner (built-in primary relay driver)
- Triggering incident:
 - non-changing air gap for a period of 25 seconds (i.e. rotor not in motion) energizes power relay,
 - 1/2 pole motion **instantly** de-energizes relay (Δ 5 mm (196.8 mils);
- Power relay contacts for creep detection to SCADA or annunciation device
- External power supply for DCC-631 and power relay
- Can easily be upgraded to a creep and speed detector

DESCRIPTION

The purpose of the DMTM-100 Rotor Creep Detector is to detect slow rotor motion (creep), notify SCADA when machine is at standstill, and/or safeguard against unexpected rotor rotation during maintenance. It consists of a VM 3.1 Capacitive Sensor in the air gap, a 10 m (32.8 ft) extension cable, a DCC-631 Signal Conditioner with built-in primary relay driver.

Rotor motion is detected by sensing air gap variation as poles pass over the sensor. The relay driver of the conditioner activates when gap variation stops for over 25 seconds. **A 1/2 pole motion instantly de-energizes the power relay (Δ 5 mm /196.8 mils).** The conditioner relay driver activates the remote main power relay (+24V) which offer both normally opened (NO) and normally closed (NC) contacts for connection to machine SCADA or an annunciation device.

DETAILS





DM™-100 ROTOR CREEP DETECTOR DCC-631 MAIN SPECIFICATIONS

Operation

- Matching Sensor VM 3.1
- Detection Range Extended to 5 to 50 mm
(196.8 to 1968.5 mils)
- Output Signal
 - System Stopped 0VDC
 - Machine in Rotation 0VDC
 - Machine Stopped +24VDC, 60 mA max
- Accuracy <5% of reading
- Repeatability ±0.6% of reading
- Interchangeability ±5% of reading
- Frequency Response
 - Min. DC to 1 kHz (-3 dB)
 - Typical DC to 1.2 kHz (-3 dB)
- Temperature Drift <500 ppm/°C

Power Requirement

- Voltage +24VDC ±15%
- Consumption 90 mA typical (+24VDC)
- Protection auto-reset fuse

Connection

- Cable from Sensor SMA connector (female)
- Power & Output Cable M12 male connector
- Ground Ground lug bolt

Environmental

- Temperature:
 - Operation 0°C to 55°C (32°F to 131°F)
 - Storage 0°C to 85°C (32°F to 185°F)
- Humidity Up to 95% non condensing

Physical Characteristics

- Module Body Die-cast aluminium
- Dimensions
 - A- Height 44.5 mm (1.75 in.)
 - B- Width 82.5 mm (3.25 in.)
 - C- Length 139.5 mm (5.5 in.)



Matching Triaxial Cable

- Type Triaxial 100% shielded
- Length
 - Nominal 10 m (32.8 ft)
 - Minimum 9.5 m (31.2 ft)
- Connectors
 - On Sensor End SMA connector (female) and lug-terminated grounding wire
 - On Conditioner End SMA connector (male) and lug-terminated grounding wire
 - Minimum Bending Radius 5 cm (2 in.)

MAIN POWER RELAY SPECIFICATIONS

Power Supply

- Source Universal (100-240 VAC
50/60 Hz, 90-350 VDC)
- Output 24 VDC, 1A
- Connection Type Removable screw terminals
- Mounting On 35 mm DIN rail

Auxiliary Relay

- Coil Nominal Voltage +24 VDC
 - Nominal Current 36.9 mA
 - Load 650 Ω
- Contact Configuration 2 poles double throw
(2 NO and 2 NC)
- Capacity of Contacts 10A, resistive load
(24 VDC or 100 VAC)
- Temperature (Operation) -25 to +55°C (-13 to +131°F)
- Switching Capacity 1000 VA, 240 W
- Mounting On 35 mm DIN rail, or 2 screws