

## DESCRIPTION

The purpose of the DM-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 (30-ft) extension cable, a DCC-631 Signal Conditioner with built-in primary relay, a cable link up to 30.5 m (100ft), and a remotely installed main power relay. External power supply required for DCC-631 and main relay.

Rotor motion is detected by sensing air gap variation as poles pass over the sensor. The primary relay of the conditioner activates when gap variation stops for over 25 seconds. It instantly deactivates with any rotor motion up to half a pole width. The primary relay contact drives 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.

## DM-100

### ROTOR CREEP DETECTOR

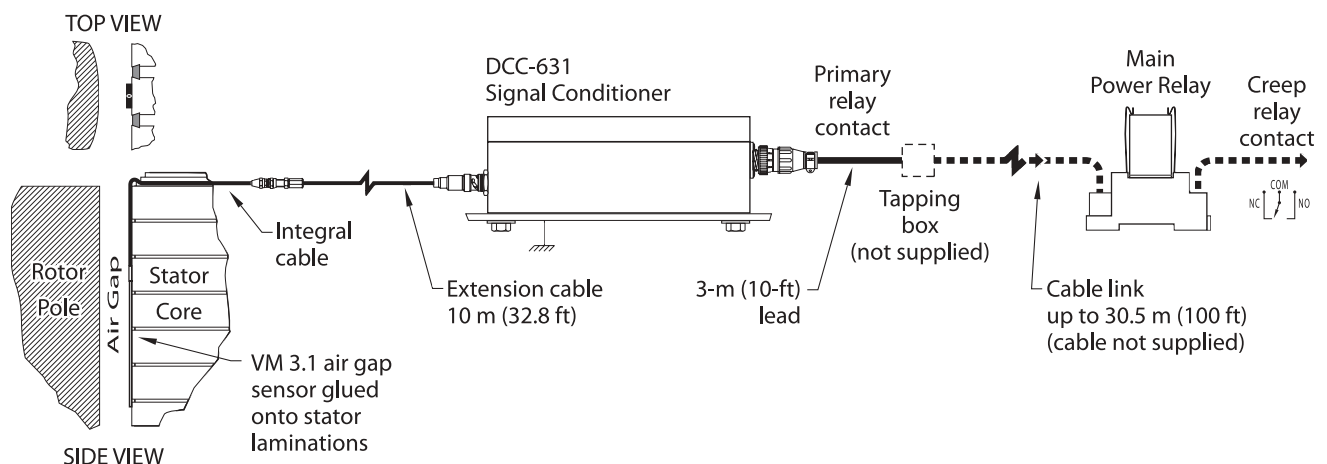
#### APPLICATIONS

- 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, range: 5–50 mm / 200–2000 mils),
  - fixed-length extension cable, (10 m / 30 ft)
  - DCC-631 Signal Conditioner (built-in primary relay, 3-m (10-ft) output cable lead)
  - Main power relay (+24 V, NO and NC contacts available, remote installation to be specified by customer)
  - Cable link up to 30.5 m / 100 ft (not supplied) between DCC-631 and main power relay
- Triggering incident:
  - non-changing air gap for a period of 25 seconds (i.e. rotor not in motion) energizes relay
  - 1/2 pole motion instantly de-energizes relay
- Main power relay contacts for creep detection to SCADA or annunciation device
- External power supply for DCC-631 and main power relay
- Can easily be upgraded to a creep and speed detector

#### DETAILS





## DM-100 ROTOR CREEP DETECTOR VM 3.1 MAIN SPECIFICATIONS

- Noncontact proximity measurement, passive device, stator-mounted, capacitive<sup>1</sup> measuring technology

### Operation

- Linear Measuring Range 5 to 50 mm standard (200 to 2000 mils)
- Sensitivity 0.9 mA/mm (22.6  $\mu$ A/mils)
- Linearity <1.5%
- Frequency Response Limited by the conditioner
- Interchangeability  $\pm$  1.5%

### Environmental

- Temperature Range 0° to 125°C (32° to 260°F)
- Magnetic Field Up to 1.5 tesla [50 or 60 Hz]
- Dust & Oil Contamination No effect

### Connection

- Integral Cable Coaxial, 50 cm (19.70 in.)
- Extension Cable Triaxial, fixed 10 m (32.80 ft)

### Dimensions

- Height 220 mm (8.70 in.)
- Width 33.25 mm (1.30 in.)
- Thickness 1.77 mm (0.07 in.)
- Clearance 3.4 mm (0.13 in.)

## MAIN POWER RELAY SPECIFICATIONS

- Remotely installed at user location, NO and NC contacts readily available

### Creep Detection

- Type Dry contact, DPDT relay Normally Opened (NO) and Normally Closed (NC) available
- State As per DCC-631 output
- Relay Power Requirement +24 VDC
- Maximum Voltage
  - Maximum Current 10 A, resistive load (24 VDC or 110 VAC)
  - Switching Capacity 1100 VA, 240 W

## DCC-631 MAIN SPECIFICATIONS

- Small size cast aluminum enclosure, bake painted, corrosion resistant, sealed recessed neoprene gasket

### Contact Output (Built-in Primary Relay)

- Type Dry contact SPST, normally opened
  - System OFF Opened
  - Unit rotating Opened
  - Unit stopped Closed,  $t_{stop\ delay} >25\ sec.$
- Sensitivity
  - Stopped to rotation  $\Delta$  air gap > 5 mm (197 mils), Time to react Instantaneous
  - Rotation to stopped  $\Delta$  air gap < 5 mm (197 mils), Time to react 25 sec.

### Connection

- Output Cable 4-pair shielded, 3 m (10 ft) with 9-pin CPC socket and flying leads
- Link to Main Power Relay Up to 30.5 m (100 ft) (to be supplied by user)

### Supply

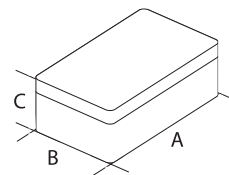
- Input Voltage +24 VDC  $\pm$  15% [300 mA]
- Power Consumption 7 W
- Fuse 0.5 A slow-blow

### Environmental

- Temperature Range
  - Operation 0° to 55°C (32° to 130°F)
  - Storage -40°C to 80°C (-40° to 175°F)
- Humidity Up to 95% noncondensing

### Dimensions

- Length (A) 220 mm (8.67 in.)
- Width (B) 120 mm (4.72 in.)
- Height (C) 80 mm (3.14 in.)
- Weight 1 kg (22 lb)



### Optional

Can easily be upgraded to a creep and speed detector. Contact VibroSystM for further information.

VibroSystM reserves the right to change specifications to improve products without notification.  
<sup>1</sup>Patented measuring technology

**Published:** 96.06.12    **Revised:** 07.10.04