6. パワーレリーユニット

KSV-9N形電動機は、本製品のパワーレリーユニットとしてP210-70を使用ください。駆動抵抗10Ω、線電圧380V、7.5kW（40kW）の場合、1スロット・3点取付に自己保守機能を有するパワーレリーユニットを内蔵しています。

- 電機電圧：100V/110V/120V
- 電荷電流：4A以下
- 消費電力：4A以下
- 供給電流：KSV-9N形電動機
- 後部定格：E、F、G、H型最大電流100A（最大負荷90A）
- 総接続抵抗：絶縁抵抗（50Hz）にて1MΩ以上
- 搬送力：100kg
- 電流：4A以下
- 重量：30kg
- 寸法：96×394×400mm
- 質量：約20kg
- 適用方法：ブリッジタイプリレー（オプション）
- オプション：機能ハンドブックまたは配線図を配布

7. 取扱い方法

- 機械構成

1. サービス形4枚を十分に組合しておいても、フレーム状上のためKSV-10形P210-70-70形の動力配線のためグリッド状4枚配線を用いることは避け、必ず線電圧を用いてください。

2. 電動機の取り付けは、取付ノブしっかり配線をし、電動機の固定がはかならない状態になります。

3. 電動機の固定は、KSV-9N-1形の固定方法を、機能ハンドブックを利用して自己保守機能を有するパワーレリーユニットを使用してください。
1. PURPOSE OF USE
Capacitive Level Sensor KSV-9N is a level instrument to detect presence of liquids such as water and chemical, and solids such as pellet and load to send signals utilized to give alarm output.

2. STANDARD SPECIFICATIONS

3. CAUTIONS
(1) Do not use in any other application, otherwise the equipments may be damaged.
(2) Do not install in hazardous location. The sensor is not explosion proof construction.
(3) To avoid personal injury, the supply power must always be turned off while wiring or inspection.
(4) Make sure the cable is correctly wired.
(5) The negative power of this sensor is grounded by the mounting pull. Make sure it is not a problem, if the power is supplied independently.

4. OUTPUT STAGE CIRCUIT DIAGRAM

5. DIRECTION OF USAGE

6. PR2100-7U
We recommend PR2100-7U, Power Relay Unit, for the power source of KSV-9N, available with 2-SPDT relay output and self-holding control.

(1) Power Supply : 100 / 110 / 200 / 220 V AC ±10 % 50 / 60 Hz
(2) Power Consumption : 4 VA Max.
(3) Output Power : Exclusive use of KSV-9N
(4) Relay Output : 200V 2A AC (Resistive load/100,000 operations (Maximum load))
(5) Insulation Resistance : 500V DC more than 100MΩ
(6) Insulation Resistance : 500V DC more than 100MΩ
(7) Operating Temperature : -10 to 60°C (Get rid of dew)
(8) Operating Humidity : 35 to 95 % RH
(9) Construction : NBR rubber gasket IP40
(10) Operating Indication : LED lighting (Red)
(11) Materials : ABS
(12) Dimension : W90 x H84 x D109 mm
(13) Mass : Approx. 300g
(14) Mounting : Plug-in (Socket : Option)

7. WIRING
(1) The connecting cable between KSV-9N and PR2100-7U should be separated with the other power signal cable.
(2) We recommend 3-core vinyl cab-safe cable of 0.75mm² or equivalent.
(3) The separation distance between KSV-9N and PR2100-7U is 200mm Max., and shielded cable is recommended.

8. ADJUSTMENT
Take the following steps to adjust sensitivity with medium in the tank to be moved upward and downward.

(1) Make sure the tank is empty or the surface of the material is adequately disturbed from the electrode. (Normally more than 100mm) Turn the adjusting knob clockwise to the “L” side to determine point A where the operation indicator lamp is light ON.
(2) Filled medium in the tank to sufficiently cover the electrode. Turn the adjusting knob counter-clockwise to the “L” side to determine point B where the operation indicator lamp goes OFF.
(3) Empty tank again and turn the adjusting knob to the “R” side to confirm the operation indicator lamp is light ON at point A. Set the adjusting knob at point C where is midpoint between point A and B.

Note
(1) If the medium is high adhesive, the position of point A may be steady. Check point A and readjust after short term operation.
(2) If the adjusting indicator lamp does not go OFF while turning the adjusting knob to the “L” side, the point where the adjusting knob can no longer be turned counter-clockwise may be considered point B.

9. MAINTENANCE & INSPECTION
Inspect the sensor semi-annually or annually. Since inspection intervals varies with applications and process conditions such as pressure, temperature and so on. We recommend you to inspect periodically.

(1) Make sure that there is no damage. If necessary, replace equipments.
(2) Clean build-up or coating on the detection parts.
(3) Check for and clean dirt, dust, moisture and metallic substances in the mounting pull.

10. TROUBLESHOOTING
(1) Relay de-energized when the electrode is covered by material.
   - Sensitivity sets too low: Turn the adjusting knob clockwise to the “R” to set high sensitivity.
   - Material bridge or angle of repose: Change the mounting position with the considering angle of repose.
   - Initial adjustment is not correctly done: Readjust again by taking the steps of chapter 8, Adjustment.
   - Improper wiring: Recheck wiring with the reference of chapter 7, Wiring.
(2) Relay energized when electrode is not covered by material.
   - Sensitivity sets too high: Turn the adjusting knob counter-clockwise to the “L” to set low sensitivity.
   - Effect of build up on the electrode: Take off the build up from the electrode. Recheck point A and readjust sensitivity.
   - Material dead stock: Change mounting position without the influence of dead stock.
   - Improper wiring: Recheck wiring with the reference of chapter 7, Wiring.