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Voltage Detecting System

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VOLTAGE DETECTING SYSTEMS

Voltage detecting system (VDS) devices are used to detect presence or absence of operating voltage, which consists of Voltage Detecting Insulator (VDI) / Capacitive Voltage Divider (CVD) and Voltage Indicating Unit (VIU)

Applications

- Generally used in power & distribution network to detect voltage presence or absence in the system
- Line condition monitoring & system controlling
- SCADA signaling for remote indication and monitoring
- Fault detection
- For safety and interlocking purpose
- Automatic supply changeover switch to be used to reduce the changeover time

Features & Technical Compliances

- Detection of voltage in high, medium and low switchgear according to IEC 61243-5
- Capacitor Voltage Divider available in range from 3.3 kv to 36 kv
- Integrated 3 Phase devices (Phase Comparator) as per LRM and HR specification as per IEC 61243-5
- Built in protection from High Voltage by means of Surge Arrestor or MOV
- Black colour ABS Enclosure with M.S Powder Coated Chassis
- Environmental Conditions 0° C to +55° C, 10% RH to 85 % RH
- Developments of VDS as per client's specific requirements

Voltage Detecting Insulator (VDI)

- Manufactured with high quality epoxy resin system with pressure gelation process
- All insulators are equipped with sheds increasing creepage distance
- Consists of high voltage capacitor
- Manufactured as per customer requirement or as per our standard design
- System Voltage: 3.3 kV to 36 kV
- Capacitance value of VDI from 15 pF to 600 pF
- Technical compliance as per IS / IEC standards

Voltage Indicating Unit (VIU)

Model - VIU 02A

- Line voltage : 3.3 kv to 36 kv
- Coupling capacitance : 15 pF to 600 pF
- Indication : Self powered red- LED
- Dimension : 72 mm x 72 mm x 75 mm, Panel Cut out 68 x 68 mm

Voltage Indicator and Phase Comparator Unit

Model VIU 010 - HR Type

- Line voltage : 3.3 kV to 36 kV
- Coupling capacitance : 3.3 kV – 600 pF, 6.6 kV – 300 pF, 11 kV – 150 pF, 22 kV – 75 pF, 33 kV – 50 pF
- Indication : Self powered red- LED
- Dimension : 96 mm x 48 mm x 76 mm, Panel Cut out 92 x 46 mm
- Phase comparator : HR type Output terminals with 19 mm center distance
- Voltage Phase comparator : 70 to 90 VAC at Threshold voltage

Model VIU 011 - LRM Type

- Line voltage : 3.3 kV to 36 kV
- Coupling capacitance : 3.3 kV – 600 pF, 6.6 kV – 300 pF, 11 KV – 150 pF, 22 kV – 75 pF, 33 kV – 50 pF
- Indication : Self Powered Red- LED
- Dimension : 96 mm x 48 mm x 76 mm, Panel Cut out 92 x 46 mm
- Phase comparator : LRM type Output terminals with 14 mm center distance
- Voltage Phase comparator : 4 to 5 VAC at Threshold voltage. 7 VAC at Nominal Voltage

Voltage Indicating and Control Unit

Model - VIU 12A

- Line voltage : 3.3 kV to 36 kV
- Coupling capacitance : 3.3 kV – 600 pF, 6.6 kV – 300 pF, 11 KV – 150 pF, 22 kV – 75 pF, 33 kV – 50 pF
- Indication : Self powered red- LED
- Dimension : 96 mm x 48 mm x 160 mm, Panel Cut out 92 x 46 mm
- Auxiliary Supply : 24 VDC or 110 VDC or 220 VDC or 230 VAC
- Relay output Contact Rating : One Change over Relay output Common for all 3– Phases, 1.5 A at 250 VAC; 2 A at 30VDC for all phase.
- Voltage setting : As per requirement (Factory set)
- Relay Logic : As per requirement and also available for single phase

Model - VIU 05

- Line voltage : 3.3 kV to 36 kV
- Coupling capacitance : 3.3 kV – 600 pF, 6.6 kV – 300 pF, 11 KV – 150 pF, 22 kV – 75 pF, 33 kV – 50 pF
- Indication : Self powered red- LED
- Dimension : 96 mm x 96 mm x 160 mm, Panel Cut out 92 x 92 mm
- Auxiliary Supply : 24 VDC or 110 VDC or 220 VDC or 230 VAC
- Relay output Contact Rating : Per Phase 1Change over Relay output, 1.5 A at 250 VAC, 2 A at 30VDC
- Voltage setting : Using front panel pot with Knob
- Relay Logic : As per requirement

Voltage Indicating and Control Unit with phase comparator

Model - VIU 09A

- Line voltage : 3.3 kV to 36 kV
- Coupling capacitance : 3.3 kV – 600 pF, 6.6 kV – 300 pF, 11 KV – 150 pF, 22 kV – 75 pF, 33 kV – 50 pF
- Indication : Self powered red- LED
- Dimension : 96 mm x 48 mm x 160 mm, Panel Cut out 92 x 46 mm
- Auxiliary Supply : 24 VDC
- Phase comparator : LRM type with 14 mm center distance
- Voltage at Phase Comparator : 4 to 5 VAC at Threshold voltage. 7 VAC at Nominal Voltage
- Relay output Contact Rating : 2 Change over Relay output Common for all 3– Phases, 1.5 A at 250 VAC, 2 A at 30VDC
- Voltage setting : As per requirement (Factory set)
- Relay Logic : As per requirement

Model - VIU 14

- Line voltage : 3.3 kV to 36 kV
- Coupling capacitance : 3.3 kV – 600 pF, 6.6 kV – 300 pF, 11 KV – 150 pF, 22 kV – 75 pF, 33 kV – 50 pF
- Indication : Self powered red- LED
- Test Button : Test button for LED testing
- Dimension : 96 mm x 48 mm x 160 mm, Panel Cut out 92 x 46 mm
- Auxiliary Supply : 24 VDC or 110 VDC
- Relay Output Contact Rating : 1 Change over Relay output contact for Voltage Absence and Presence.
- Voltage Setting : As per requirement (Factory set)
- Relay Logic : As per requirement

Voltage Indicating Unit LCD Type

VIU is a device used to indicate high voltage presence in the system with Voltage presence and absence relay for remote Indication The Presence of voltage indicates individual indication of LCD for each individual phase

- Different type of Relay Logic as per client requirements.
- Universal power supply 85 to 260 VAC / VDC
- LRM type
- Range : 3.3 kV to 33 kV
- Bushing / VDI : Capacitance value from 6pF to 150pF
- Indication : LCD Type for R, Y and B Phase
- IEC Compliance : IEC 61243-5
- No Indication : If input is less than 10 % Un
- Indication : Indication start before 45 % Un
- Voltage limiting device : Gas discharge tube is used for Voltage limiting device and protection
- Operating Temperature : -6 to 55 Deg C
- Dimension : 92 x 48 x 150 mm
- Relay Output : Relay Output Contact will be provided
- Test point : Phase comparator output available at test point socket

Fault Passage Indicator (FPI)

The FPI is used to detect phase fault, earth fault and indication faults in Medium Voltage cable networks. Three external current sensors are used to detect phase faults (L1, L2, and L3) and one sensor is used to detect the earth fault. It also designed to detect and indicate earth fault and short circuit on a cable system in RMU networks with one input or open ring arrangement.

- Short circuit trip current : Setting: 200/300/400/600/700/800/1000/1200 AMP. (±15%)
- Earth Fault Trip Curren : Setting: 10, 20, 30, 40, 50, 60, 80 & 100 AMP (±15%).
- Short circuit and Earth fault response time : Programmable response delay for short-circuits and Earth-fault (individually) The Settings available in 4 steps 50, 100, 150 and 200 mill sec.
- Size of Indication Unit : 96 mm (W) X 48mm (H) X 70mm (D)
- Indication type : Earth-fault indication by blinking of earth-fault LED
  Short-circuit Indication by blinking of short-circuit LEDs
  a) One LED for each phase – (3 LED)
  b) One LED for Earth-Fault.
  c) One LED for Battery low indication.
- Reset Type : a) Manual reset – Using front panel pushbutton
  b) Remote reset (Potential free Input)
  c) Auto Reset by Time : 60,120,240,480 Min ((±3%)
- Self-Test : Press test Button for 5 Sec to check the healthiness of LED
- Relay output : a) Earth fault Relay : 1NO+1COM
  b) Short Circuit Relay: 1NO+1COM.
  Normally open contact change to close when fault occurs
- Power supply : Lithium Battery 3.6 VDC

Voltage Presence Indication Systerm (VPIS)

VPIS (Voltage Presence Indicating System) is a device used to indicate high voltage presence in the system.
The Presence of voltage indicates by individual indication of LED for each individual phase

- Range : 3.3 kV to 33 kV
- Frequency : 50Hz
- Indication : 5 mm RED LED indications for R, Y and B Phase
  Phase comparator : HR type
- IEC Compliance : IEC 62271-206
- No Indication : If input is less than 10 % Un
  Indication : Indication start before 45 % Un
  Degree of protection : IP 54
- Voltage limiting device : Gas discharge tube is used for Voltage limiting device and protection
- Operating Temperature : -6 to 55 Deg C
- Panel Cut out : 23x107 mm
- External supply : No external supply required
- Output : Isolated optocoupler output will be provide in special case of requirement for relay operation of external unit for remote indication
- Test point : Phase comparator output available at test point socket

KV Meter

Digital KV is used to measure and indicate the high Voltage of all 3 phases. This is microcontroller based instruments with LCD display and programmable key for calibration and Relay setting.

- Input : 3 Phase AC input from VDI
- Nominal Voltage : 3.3 kV, 6.6 kV, 11 kV, 22 kV, 33 kV
- Capacitance of VDI : 50 PF to 600 PF as per client requirement
- Auxiliary Supply : 85 to 260 VAC / VDC
- Display / Indication : 16 x 2 Backlit LCD Type with 0.1 KV least count
- Operating range : 30 % to 110 % of Full Range
- Accuracy : 5 % Accuracy to Reading in range of 30 % to 110%
- Safety device : Gas discharge tube used as safety device to Limit the input voltage to the KV Meter Terminal
- Relay output : One change over relay output is available as per logic requested by client
- Programmable Key : F1, F2 , F3 and F4 Four key are available on Front side for Calibration and setting of Ranges with password protection
- Dimension : 96 (W) x 96 (H) x 110(L) mm

Self Power Device (SPD)

Self-power device is used for operating Tripping coil of breaker, Battery is not required in this system.The storage power by internal capacitor bank and it will be utilised for operating tripping coil when required.

- Input 01 : 3 Phase AC Input from PT or Auxiliary single supply 85 to 300 Vac
- Input 02 : Input from Current Transformer 100A/ 5A and 75 A / 5 amp
- Output 01 : 24 ± 15 % DC Output to operate Tripping Coil for one stroke.
- Output 02 : 24 ± 15 % DC, 10 W continuous output to Operate Over current Relay.
- Indication LED : 1. LED Indication for Trip coil DC
  : 2. LED Indication for Over current Relay DC
- Voltage regulation of AC : Over and Under Voltage protection for AC input 90 Vac to 264 Vac
- Short Circuit Over Voltage Protection : Short Circuit Over Voltage Protection is provided in the circuit

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