



VITAL ENGINEERING INSTRUMENTS

Plot B103 Darshnam Antica Residency, Opp Heavy Water Tank, Danteshwar-04, Vadodara, GUJARAT.

GST : 24DVPPP1558F1ZA PAN : DVPPP1558F E : vitalengginstruments.com M : 8347269644

OPERATION MANUAL

20 Channel Continuous Earth Monitoring System With Resistance Display & Interlocks



MANUFACTURED BY

VITAL ENGINEERING INSTRUMENTS, VADODARA, GUJARAT



VITAL ENGINEERING INSTRUMENTS

Plot B103 Darshnam Antica Residency, Opp Heavy Water Tank, Danteshwar-04, Vadodara, GUJARAT.

GST : 24DVPPP1558F1ZA PAN : DVPPP1558F E : vitalengginstruments.com M : 8347269644

Applications

The System can be used to Monitor the Healthy Earthing of following Equipments.....

- Multiple Reactors, Multiple Vessels
- Multiple drum/ tote loading points
- Liquid/ powder mixing and blending
- Multiple Points on Powder conveying equipment
- Container filling and emptying
- Hoppers and dust collectors
- Fluid bed drying Equipments
- Reactor Vessels
- Powder Micro Ionizing, Pulverizing and Many More.....

Overview

The Vast usage of Explosive Solvents, in hazardous areas & applications brings in a lot of risk to mankind working in that atmosphere, The multiple equipments in the plant are connected in grid connection through earth strips and earth strips are connected to mother earth through GI Strips or Copper Plates

While the regular supervision of Earth Pits, Continuity of Plant Equipments to Earth can negate any kind of accident from occurring, however it easier said than done, hence there was a need for a system which can 24*7 measure the equipment to ground resistacne and earth continuity to make environment safe for working for the people.

INSTALLATION

The 20 Channel Continuous Earth Monitoring System has to be wall mounted in hazardous areas near to the plant equipments, so that the operator can easily make out which equipment has lost the connection to the earth or which equipment resistance is shooting up due to problem main earth pit.



VITAL ENGINEERING INSTRUMENTS

Plot B103 Darshnam Antica Residency, Opp Heavy Water Tank, Danteshwar-04, Vadodara, GUJARAT.

GST : 24DVPPP1558F1ZA PAN : DVPPP1558F E : vitalengginstruments.com M : 8347269644

Cabling Details

From Mains to FLP 20 Channel CEMS - 02 Core Armored Cable 1.5 SQMM

From CEMS SS Junction BOX to Individual Equipments - 1.5 SQMM Single Core Wire

From CEMS SS Junction BOX to Main Earth Pit - 02 Connections – 1.5 to 4 SQMM Single Core Wire

STANDARDS & CERTIFICATIONS

- ROHS, CIMFR,
- Standards Complied : IS/IEC 60079 - 11:2006 & IS/IEC 60079 - 0:2011
- Intrinsically Safe Certified IP 65 Certified

WORKING LOGIC / OPERATIONAL PRINCIPLE

- The System once powered & connected to 20 potentially hazardous equipments will check each and every equipment in interval of 05 Seconds
- Each Channel Number will be displayed with its Earthing Status and Resistance Display
- The Earthing Status May be Healthy / Unhealthy depending upon the result, if it found to be unhealthy the fault registration LED will GLOW indicating Fault
- During unhealthy Condition the hooter sounds up to bring an attention to the near by operators





VITAL ENGINEERING INSTRUMENTS

Plot B103 Darshnam Antica Residency, Opp Heavy Water Tank, Danteshwar-04, Vadodara, GUJARAT.

GST : 24DVPPP1558F1ZA PAN : DVPPP1558F E : vitalengginstruments.com M : 8347269644

- Now as the above pictorial representation of the system shows currently the system is scanning channel number 18, the resistancne of which is 0.00 OHMS and since it is healthy the GREEN/PASS LED Glows
- However it can also been seen in the photo the LED 14 & 16 is ON with RED, indication that Channel 14 & 16 has earth fault
- Two Types of earth fault can be detected by the system
- 1) No Earth Continuity – in this case the display will show the sign “OPE”
- 2) High Equipment to Ground Resistance – IF resistancne is more than 10 OHMS then it will show the actual resistancne value and indicate the fault



- Functions like HOLD, RELEASE, RESEST is also provided in the System for carrying out any repairs of earth faults, however it is not necessary to HOLD the circuit while repairing

FOR MORE INFORMATION & DETAILED VIDEO LINK FOR OPERATION PROCEDURE PLEASE CLICK BELOW LINK

<https://www.youtube.com/watch?v=46lhAhiWQes>



VITAL ENGINEERING INSTRUMENTS

Plot B103 Darshnam Antica Residency, Opp Heavy Water Tank, Danteshwar-04, Vadodara, GUJARAT.

GST : 24DVPPP1558F1ZA PAN : DVPPP1558F E : vitalengginstruments.com M : 8347269644

TECHNICAL PARAMETRES

Supply Input Voltage	:	230 V AC (To Main Unit)
Output Voltage	:	5VDC
Current Rating	:	20 Milli Amp (Intrinsically Safe)
Power Rating	:	10 Watts SMPS (Input/Output Isolated)
Ingress protection	:	IP65
Temperature range	:	-10 degree to 55 Degree
Control Relay	:	02 NOS Potential Free
Output in/out Monitoring Unit	:	Intrinsically Safe
Enclosure Material	:	Cast Aluminum Alloy (LM6)
Cable Entries	:	M 19 FLP Glands (03 nos)
Monitoring Resistance	:	>10 ohms (Shows Red Indication if resistance goes above 10 ohms)
Resistance Display	:	It will show the Individual Equipment Resistance to Ground in Ohms
Operation	:	(Healthy Earth) Less than 10 Ohms & (Unhealthy Earth) More than 10 ohms
Hooter Interface	:	(Optional – Integrated with System on Request)
Certifications	:	The entire assembly is ROHS, CIMFR & Complying IS/IEC Standards
Application	:	Tanker Earthing, Drum filling, Reactor Charging, Pharma Equipments, Multiple Equipments, Pipeline Earthing.



VITAL ENGINEERING INSTRUMENTS

Plot B103 Darshnam Antica Residency, Opp Heavy Water Tank, Danteshwar-04, Vadodara, GUJARAT.

GST : 24DVPPP1558F1ZA PAN : DVPPP1558F E : vitalengginstruments.com M : 8347269644



VITAL ENGINEERING INSTRUMENTS

Plot B103 Darshnam Antica Residency, Opp Heavy Water Tank, Danteshwar-04, Vadodara, GUJARAT.
GST : 24DVPPP1558F1ZA PAN : DVPPP1558F E : vitalengginstruments.com M : 8347269644