Voltage transformer adalah

Mladen Kezunovic, in the Manual of Electrical Engineering, 2005Voltaic transformers come in two basic solutions: a potential transformer (PT) with iron core construction and capacitor couplings (CVT), which use the principle of capacitor clutch to lower the voltage first and then with an iron-core transformer to further reduce the voltage. Both types of transformers are usually freely standing. PT is often used to measure voltages in subsistation tubes, and cvt can be used for the same measurement purpose on individual transmission lines. Since the voltages in the supply system move much more than the kilovolts, the transformers are used to reduce the voltage to an acceptable level used by protective relays. They come in standard solutions in relation to secondary voltage, usually 69,3 V or 120 V, depending on whether either the quantity of line-to-ground or line-to-line quantity is measured. Ideally, it is assumed that both types of instrument transformers act as voltage dividers and the transformation is proportional to their turn ratio. In practice, both models may experience specific deviations from the ideal case. In PTs this can manifest as unlineano behavior caused by the effects of hysteresis. In cvts, anomalies include various ringing effects at the output when the voltage is inhaled at the entrance due to a close fault, as well as the effects of stray capaciants in an inductive transformer that can affect the frequency response. Walter Ciciora, ... Michael Adams, in modern cable TV technology (Second Edition), 2004Figure 10.21 shows the schemes of two configurations of directional pairs. In both cases shown, the voltage transformer and current have the same ratio, so that after the merger the voltage-to-current ratio remains the same, which means that the side door impedance is equal to the main line. In the main line, the relative polarity of voltage and current is reversed for signals travelling in one direction. Transformers sample voltage and current regardless of signal flow in the main line. The difference is that the sampled signal reproduces, after combination, either against defeat resistance or against the side door, depending on the relative polarity of the voltage and current. This is what gives couples their immediamance. Figure 10.21. The schematic of the directional pairs. (a) Steam and power components. (b) Alternate configuration of the RF. Different clutch values are possible by changing the revolution ratio of both transformers. Ellis14 has published a tabular clutch value as a function of the relationship turns, along with a good description of the operation of the pair. Table 10.2 lists some commonly used values and their values of theoretical signal loss (practical units will have 1-2 dB excess losses due to incomplete components). The attached loss is simply due to the voltage (or current) ratio determined by the transformers, with the loss of input/output reflecting the loss redirected to the docking port (or iso-resistance, depending on the signal flow). Table 10.2. Theoretical losses of the directional steamerTurding ratio (T1 and T2)Input for output insertion loss (dB)Input into steam loss of doors (dB)2.5:10.787.963:10.519.5 44:10.5 2812.045:10.1813.97As is a chance with amplifying, added components u units designed to mount u trunk and distribution cables to separate the power supply from the signal cables i send it after a spill of right, How is shown in Figure 10.21(a). In general, means of controlling transmission of power are provided independently of RF signals to allow for greater flexibility in system design. Note that in the event of shift current power transmission, the shift current through the three phase blockers is added through the primary voltage transformer through all RF ports. Thus, pairs create a parametric type of hum modulation at a level that is high or higher than the amplifiers. The difference in sensitivity to the signals at the end and upstream, measured at the side door, is the immediarence of the steamer. Sometimes, instead of immediacance, an absolute factor of the upstream clutch, known as insulation, is determined. Numerically, the immediarence is simply the difference between the clutch factor and the insulation. As will be discussed in Chapter 15, the immediation and loss of return work together to cause an additional delay in the system group and a change in response. The clutch value may not be uniform throughout the device frequency range. Although the overall change in the clutch factor may not be desirable or intentional, the inclination and response deviation shall be measured separately and are defined in the same way as for passive devices as for amplifiers. Stylianos Basagiannis, ... Menouer Boubekeur, in Smart Grid Security, 2015AMIAdvanced Metering InfrastructureAPTAdvanced Persistent ThreatBDDBad Detection DataBMSBuilding Management SystemCHPCombined Heat and Power (Unit)CTCurrent TransformERSCTElectronic Current TransformerEVTElectronic Voltage TransformerEMSEnergy Management SystemFMRFeeder Management RelayGOOSEric Object-oriented Substation EventHVACHeating, Ventilation, i klimaDIEDIntelligent electronic deviceICInternal CombustionICSIndustrial Control SystemISAInternational Society automatizationITIntelligent terminalMUMerging UnitNERCNorth-American Electric Reliability CorporationNISTNational Institute of Standards and TechnologyPLCProgrammable ControllerPLLPhase-Locked LoopPWMPulse Width ModulationRATRemote Access ControlRMSRoot SquareROSRugged Operating SystemRTURTUTe terminal Supervisory Control and Data AcquisitionSNTPSimple Network Time ProtocolTHDTotal Harmonic DistortionVTVoltage TransformerD. Fasel, ... M.-Q. Tran, in Fusion Technology 1996, 1997 In Figure 1, each cluster consists of a power supply that feeds three gyrotrons in parallel. Three manually switched copper connections can be attached to a matching network (MN) or MN is used to adjust the impedance of the line to the rapid voltage transitions that occur, for example during gyrotron arcing. A separate device shall place two RHVPS output polarities on the ground in case of intervention within a high voltage housing. Triax cable is used to connect each RHVPS output to the cathode-ray filament filament of the gyrotron. The three guide HV cable then connects this equipment to the gyrotron. As shown schematically in Figure 2, the equipment is physically distributed to three floors. Figure 2. Physical distribution of gyrotron and tightening systemThis mounting, Which refers to cathode-ray potential includes :•MN connected to triax cable central conductor•Power components needed to generate the current needed to heat the gyrotron cathode filament•Control stand, including :-feed Return electronics is used to record current references i to cut this value u range from ± 0.5% of the required value.-optic busica for communication sa main control system-filament current i voltage-cathode measurement flow measurement•High voltage transformer that supplies heating equipment and is insulated to 150 kV from the ground To improve the shield against fast passages, electronics is located in the PerAluman (AlMg) housing. Power supplies provide copper grilles or wires arranged on all high voltage devices in the RHVPS room. This network refers to the construction of land at several points on the network. On the AC side of the copper bar follows the electrical cables to the test transformer or generator building to provide a direct (low impedance) connection in case of failure (eq short circuit). All AC components (power supplies, breakers, metal pieces) refer to these rods. On the one-way side, the Triax cable shield and the 3 conductive HV cable are connected through a wire to the electric bottom. At level +1, where gyrotron towers and control frames are located, the total floor area shall be covered by a copper belt so as to minimise the high frequency impedance of this reference to the ground and ensure the safety of staff (i.e. unlimited access area) even during rapid transitions. Since the gyrotron collector is in the same potential as the tower and polarity + RHVPS, there are two grounding options :•leave + polarity floating and refer to the one-way part of the earth's potential over the earth surface described above.•leave the earth's surface floating and refer to the earth beyond + polarity associated with the electric ground inside the RHVPS casing. The main differences are related to the additional power supply needed to store the gyrotron anode. To reduce capacitive leakage, it should be as close as possible to the gyrotron tower. In the existing building, locations are possible either under the gyrotron tower or at the additional stage of the heating system (see Fig. 2)Power supply HV for the storage of the tried cluster (118 GHz) is currently in the study; the requirements are similar to those defined for gyrotrons 82 GHz, with the exception of the gyrotron anode power supply interface. Although cathode-ray tension is common to the cluster, the trioda will allow independent modulation of the total microwave power using each anode supply. All gyrotron auxiliary systems are controlled and powered by distributed CPUs (called slaves) connected together through the BITBUS fieldbus described in [4] and are used for all TCV installations. Various slave tasks are:•for cooling: control of pump status and flow in pipes•for heating: ON/OFF ORDERS, Transfer I/U cathode-ray measurement of filament, current reference, status of gyrotron heating system•for management: centralize alerts and send related tasks to RHVPS/i/or auxiliary (pumps, magnetic fields i en.), based on software logic. Convert optical fibre signals in TTL arc detection signals on the window, Optical Unit Matching (MOU) and that part of the wave shift line not located in the TCV area.•for the pump : vacuum wave control. Depending on the necessary tasks, slaves are intended for individual gyrotrons, entire clusters or complete installation. Data storage, visualization, driving commands and parameter settings are already included in the TCV control system in order to minimise the necessary effort when the microwave power is first injected into TCV plasma. Turan Gonen, in the Manual of Electrical Engineering, 2005 Voltage regulators located in the subsoi or on the power supply are used to maintain voltage constant at fictitious regulation or control point, regardless of size or load power factor. The regulation is usually chosen so that it is somewhere between the regulator and the end of the power supply. Automatic voltage maintenance is achieved by adjustable resistance settings and reaction elements of the unit called the Line Lowering Compensater (LDC), which is located on the voltage regulator control panel. The determination of the appropriate dialing settings depends on whether any load is connected from the power supply between the regulator and the regulation. In the event that no load between the regulator and the regulation is imprinted between the regulator and the regulation, it is possible to determine the r call adjustment for the line descent: where the CTP is the assessment of the primary current transformer; VTN is the ratio of the voltage turns of the transformer, which is Vpri/Vsec; and Reff is the effective resistance of the supply wire from the regulatory station to the regulated point. Reff can be determined from:In equation 6.2, the power conductor's resistance from the regulatory station to the edit point, Ω/mi to the conductor; s1 is the length of the three-phase power supply between the regulatory station and the sub-wall, we (multims length by 2 if the power supply is in a single phase); and l is the primary power supply mi.In In addition, the setting X of the line drop-down compensater can be determined from: where Xeff is the effective reaction of the supply wire from the regulator to the edit point:in Equation 6.5, the xa is the inductive response of each phase conductor power supply at 12-v spacing, Ω/mi; xd is inductive reaction spacing, Ω/mi; and xL is an inductive response of the supply wire, Ω/mi.Note that, given that the R and X settings are set for the total associated load, instead of a small group of customers, the resistance and response values of the transformers are not included in the effective resistance and reaction calculation. On the other hand, if the load is disconnected between the regulatory station and the regulation, the adjustment R of the compensater for the descent of the line can still be determined from equation 6.2, but the reff determination is slightly more involved. In this case, the actual resistance is calculated from:(6.6)Reff=∑i=1n| VDR|i|IL|,in(6.7)Σi=1n| VDR|i=| IL,1|×ra,1×I1+| IL,2|×ra,2×I2+⋯+| IL,n|×ra,n×In.In equations 6.7, | VRS is a decrease in voltage due to line resistance of the power supply section between the regulatory station and the point control, V/section; |∑i=1nVDR|i is the total voltage drop due to the linear resistance of the power supply between station control and regulation; | IL|is the extent of the load flow at the regulator site; | IL, |is the load flow rate in the ith feeder section; Ra, i is the resistance of the power cord in the i. part of the power supply, Ω/mi; and li = length of ith feeder section, mi.Also, X call setting line-drop compensation can be found from equation 6.4, but the Xeff determination is again slightly more incorporated. The following equations should be used:(6.8)Xeff=∑i=1n| VDx|i|IL|,in(6.9)Σi=1n| VDX|i=| IL,1|×XL,1×I1+| IL,2|×XL,2×I2+⋯+| IL,n|×XL,n×In.In this equate, | VDX|i is a drop in voltage due to the lineavv response of the nutrient bet|ween regulatory station and regulatory points, V/section; |∑i=1nVDX|i is the total voltage drop due to the power supply line response between station regulation and regulation; and XL, 1 is an inductive response as defined in equation 6.6, the i-part of the power supply, Ω/mi. The difference between the two voltage values is the total voltage drop between the regulator and the edit point, which can be found as:(6.10)VD=| IL|×Reff×cosθ+| IL|×Xeff×sinθ, from which reff and Xeff values can be easily found if the power supply load factor and the average r/x ratio of power supplies between regulator and regulation are known. Known.