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LIST OF SYMBOLS

w V_{ds} V_{qs} V_{sabc} V_{sa}, V_{sb}, V_{sc} $V_{sa}(pu), V_{sb}(pu), V_{sc}(pu)$ V_{LPF} V_{NF} V_{qs} V_{qn} V_{diff} V_{qm} V_m $V_{sab}, V_{sbc}, V_{sca}$ $V_{oab}, V_{obc}, V_{oca}$ $I_{sa}(pu) I_{sa}, I_{sb}, I_{sc}$ f_c f $f_{c,LPF}$ \bar{V}_{LPF} V_{dc} R_s L_s S_{abc_r} S_{abc_i} i_C V_{ai}, V_{bi}, V_{ci} L_f C_{f} P_C

angular speed of electrical power system distribution, rad/s d axis voltage, V q axis voltage, V set of three phase voltage, V grid phase voltages, V grid phase voltages, pu low pass filter output voltage, V noise filter output voltage, V differential result of V_{as} , V normalization value of V_{as} , V sum of V_{ds} and V_{qn} voltage, V peak value of V_{as} , V peak voltage, V grid line voltage, V grid line voltage, V grid current, A LPF cut-off frequency, Hz grid voltage frequency, Hz cut-off frequency of LC filter, Hz local averaging value of V_{LPF} , V $V_{ra}(pu), V_{rb}(pu), V_{rc}(pu)$ set of PWM rectifier input phase voltage, pu DC bus voltage or DC link voltage, V input resistor of PWM rectifier, W input inductor of PWM rectifier, H control signal of PWM rectifier control signal of PWM inverter output current of PWM rectifier, A input current of PWM inverter, A current of DC link capacitor, A set of PWM inverter output voltage, V output inductor of PWM inverter, H output resistor of PWM inverter, mF input power of back-to-back converter, W DC-link command voltage, V

 I_{ds}^* I_{qs}^* V_{dr}^* V_{ar}^*, V_{br}^*, V q_e V_{qr}^* T_s $V_{s1a}, V_{s1b}, V_{s1c}$ $V_{s2a}, V_{s2b}, V_{s2c}$ $I_{s1a}, I_{s1b}, I_{s1c}$ $I_{s2a}, I_{s2b}, I_{s2c}$ I_{o1}, I_{o2}, I_{o3} V_{o1}, V_{o2}, V_{o3} Abbreviations pu rms SLGF PLC VSD US DVR UPS **SSVR** AVC **D-STATCOM** SPDT **SMES** HTS DC AC STS SRRF CSRRF LPF **MSRRF** POW THD NF **IMSRRF** BBM MBB **PWM** PLL

d axis command current, A q axis command current, A command voltage in d axis command voltage of SVM, V phase angle of grid voltage, rad command voltage in q axis, V controller sampling time grid voltages, V alternate supply voltages, V grid currents, A alternate supply currents, A load currents, A load voltages, V

per unit root mean square single line-to-ground fault programmable logic controller variable speed drive united state dynamic voltage restorer uninterruptible power supply solid state restorer active voltage conditioner distribution static compensator single pole, double throw superconducting magnetic energy storage high temperature superconducting direct current alternating current static transfer switch synchronously rotating reference frame conventional synchronously rotating reference frame low-pass filter modified synchronously rotating reference frame point-on-wave total harmonic distortion noise filter improved modified synchronously rotating reference frame break before make make before break pulse width modulation phase locked loop



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