Wind Farm 1 – Signals

Wind turbine SCADA signals for the 5 selected wind turbines

Field Name	Description
Turbine Identifier	Wind turbine ID
TimeStamp	Date and time of the measure
Descriptors + Value	Description and value of the sensor data

Please find below the SCADA signals available for each wind turbine and respective units. The data is given for a 10-minute average period.

Descriptor	Type	Description	Component
Gen_RPM_Max [rpm]	FLOAT	Maximum generator rpm in latest average period	Generator
Gen_RPM_Min [rpm]	FLOAT	Minimum generator rpm in latest average period	Generator
Gen_RPM_Avg [rpm]	FLOAT	Average generator rpm	Generator
Gen_RPM_Std [rpm]	FLOAT	Std. generator rpm in latest average period	Generator
Gen_Bear_Temp_Avg [ºC]	INT	Average temperature in generator bearing 1 (Non-Drive End)	Generator
Gen_Phase1_Temp_Avg [ºC]	INT	Average temperature inside generator in stator windings phase 1	Generator
Gen_Phase2_Temp_Avg [ºC]	INT	Average temperature inside generator in stator windings phase 2	Generator
Gen_Phase3_Temp_Avg [ºC]	INT	Average temperature inside generator in stator windings phase 3	Generator
Hyd_Oil_Temp_Avg [ºC]	INT	Average temperature oil in hydraulic group	Hydraulic
Gear_Oil_Temp_Avg [ºC]	INT	Average temperature oil in gearbox	Gearbox
Gear_Bear_Temp_Avg [ºC]	INT	Average temperature in gearbox bearing on high speed shaft	Gearbox
Nac_Temp_Avg [ºC]	INT	Average temperature in nacelle	Nacelle
Rtr_RPM_Max [rpm]	FLOAT	Maximum rotor rpm in latest average period	Rotor
Rtr_RPM_Min [rpm]	FLOAT	Minimum rotor rpm in latest average period	Rotor
Rtr_RPM_Avg [rpm]	FLOAT	Average rotor rpm	Rotor
Amb_WindSpeed_Max [m/s]	FLOAT	Maximum windspeed within average timebase	Ambient
Amb_WindSpeed_Min [m/s]	FLOAT	Minimum windspeed within average timebase	Ambient
Amb_WindSpeed_Avg [m/s]	FLOAT	Average windspeed within average timebase	Ambient
Amb_WindSpeed_Std [m/s]	FLOAT	Std. windspeed within average timebase	Ambient
Amb_WindDir_Relative_Avg [º]	FLOAT	Average wind relative direction	Ambient
Amb_WindDir_Abs_Avg [º]	FLOAT	Average wind absolute direction	Ambient
Amb_Temp_Avg [ºC]	INT	Average ambient temperature	Ambient

Prod_LatestAvg_ActPwrGen0 [Wh]	INT	Active power - generator disconnected (yaw motor hydraulic motor etc.)	Production
Prod_LatestAvg_ActPwrGen1 [Wh]	INT	Active power - generator connected in delta	Production
Prod_LatestAvg_ActPwrGen2 [Wh]	INT	Active power - generator connected in star	Production
Prod_LatestAvg_TotActPwr [Wh]	INT	Total active power	Production
Prod_LatestAvg_ReactPwrGen0 [VArh]	INT	Reactive power - generator disconnected (yaw motor hydraulic motor etc.)	Production
Prod_LatestAvg_ReactPwrGen1 [VArh]	INT	Reactive power - generator connected in delta	Production
Prod_LatestAvg_ReactPwrGen2 [VArh]	INT	Reactive power - generator connected in star	Production
Prod_LatestAvg_TotReactPwr [VArh]	INT	Total reactive power	Production
HVTrafo_Phase1_Temp_Avg [°C]	INT	Average temperature in HV transformer phase L1	Transformer
HVTrafo_Phase2_Temp_Avg [°C]	INT	Average temperature in HV transformer phase L2	Transformer
HVTrafo_Phase3_Temp_Avg [°C]	INT	Average temperature in HV transformer phase L3	Transformer
Grd_InverterPhase1_Temp_Avg [°C]	INT	Average temperature measured by the IGBT-driver on the grid side inverter	Grid
Cont_Top_Temp_Avg [°C]	INT	Average temperature in the top nacelle controller	Controller
Cont_Hub_Temp_Avg [°C]	INT	Average temperature in the hub controller	Controller
Cont_VCP_Temp_Avg [°C]	INT	Average temperature on the VCP-board	Controller
Gen_SlipRing_Temp_Avg [°C]	INT	Average temperature in the split ring chamber	Generator
Spin_Temp_Avg [°C]	INT	Average temperature in the nose cone	Spinner
Blds_PitchAngle_Min [°]	FLOAT	Maximum angle in latest average period	Blades
Blds_PitchAngle_Max [°]	FLOAT	Minimum angle in latest average period	Blades
Blds_PitchAngle_Avg [°]	FLOAT	Average angle	Blades
Blds_PitchAngle_Std [°]	FLOAT	Std. angle in latest average period	Blades
Cont_VCP_ChokcoilTemp_Avg [°C]	INT	Average temperature in the choke coils on the VCS-section	Controller
Grd_RtrInvPhase1_Temp_Avg [°C]	INT	Average temperature measured by the IGBT-driver on the rotor side inverter phase1	Grid
Grd_RtrInvPhase2_Temp_Avg [°C]	INT	Average temperature measured by the IGBT-driver on the rotor side inverter phase2	Grid
Grd_RtrInvPhase3_Temp_Avg [°C]	INT	Average temperature measured by the IGBT-driver on the rotor side inverter phase3	Grid
Cont_VCP_WtrTemp_Avg [°C]	INT	Average temperature in the VCS cooling water	Controller
Grd_Prod_Pwr_Avg [kW]	FLOAT	Power average according to	Grid
Grd_Prod_CosPhi_Avg	FLOAT	Average actual phase displacement	Grid
Grd_Prod_Freq_Avg [Hz]	FLOAT	Average frequency	Grid

Grd_Prod_VoltPhse1_Avg [V]	FLOAT	Averaged voltage in phase 1	Grid
Grd_Prod_VoltPhse2_Avg [V]	FLOAT	Averaged voltage in phase 2	Grid
Grd_Prod_VoltPhse3_Avg [V]	FLOAT	Averaged voltage in phase 3	Grid
Grd_Prod_CurPhse1_Avg [A]	FLOAT	Averaged current in phase 1	Grid
Grd_Prod_CurPhse2_Avg [A]	FLOAT	Averaged current in phase 2	Grid
Grd_Prod_CurPhse3_Avg [A]	FLOAT	Averaged current in phase 3	Grid
Grd_Prod_Pwr_Max [kW]	FLOAT	Maximum Power in latest average period	Grid
Grd_Prod_Pwr_Min [kW]	FLOAT	Minimum Power in latest average period	Grid
Grd_Busbar_Temp_Avg [ºC]	INT	Average temperature in the busbar section	Grid
Rtr_RPM_Std [rpm]	FLOAT	Std. rotor rpm in latest average period	Rotor
Amb_WindSpeed_Est_Avg [m/s]	FLOAT	Average windspeed within average timebase	Ambient
Grd_Prod_Pwr_Std [kW]	FLOAT	Std. power in latest average period	Grid
Grd_Prod_ReactPwr_Avg [kVAr]	FLOAT	Average grid reactive power	Grid
Grd_Prod_ReactPwr_Max [kVAr]	FLOAT	Maximum grid reactive power	Grid
Grd_Prod_ReactPwr_Min [kVAr]	FLOAT	Minimum grid reactive Power	Grid
Grd_Prod_ReactPwr_Std [kVAr]	FLOAT	Std. Deviation grid reactive power	Grid
Grd_Prod_PsblePwr_Avg [kW]	FLOAT	Average possible grid active power	Grid
Grd_Prod_PsblePwr_Max [kW]	FLOAT	Maximum possible grid active power	Grid
Grd_Prod_PsblePwr_Min [kW]	FLOAT	Minimum possible grid active power	Grid
Grd_Prod_PsblePwr_Std [kW]	FLOAT	Std. possible grid active power	Grid
Grd_Prod_PsbleInd_Avg [kVAr]	FLOAT	Average possible inductive reactive power	Grid
Grd_Prod_PsbleInd_Max [kVAr]	FLOAT	Maximum possible inductive reactive power	Grid
Grd_Prod_PsbleInd_Min [kVAr]	FLOAT	Minimum possible inductive reactive power	Grid
Grd_Prod_PsbleInd_Std [kVAr]	FLOAT	Std. possible inductive reactive power	Grid
Grd_Prod_PsbleCap_Avg [kVAr]	FLOAT	Average possible capacitive reactive power	Grid
Grd_Prod_PsbleCap_Max [kVAr]	FLOAT	Maximum possible capacitive reactive power	Grid
Grd_Prod_PsbleCap_Min [kVAr]	FLOAT	Minimum possible capacitive reactive power	Grid
Grd_Prod_PsbleCap_Std [kVAr]	FLOAT	Std. possible capacitive reactive power	Grid
Gen_Bear2_Temp_Avg [ºC]	INT	Average temperature in generator bearing 2 (Drive End)	Generator
Nac_Direction_Avg [º]	FLOAT	Average nacelle direction	Nacelle