

Wind Turbine Controller & Datalogger

With extensive experience in wind turbine control, Voltsys has designed a range of intelligent interfaces to rectify the wild AC from a turbine for use with inverters, manage turbine speed with dump loads and provide data-logging and inverter over-voltage protection. Options include;

Dump Load

A DC dump load can be switched either as a variable load using PWM or with on/off set points.

Both options are fully configurable and can be used to manage turbine over-voltage, slow a turbine in gusts.

The VS25K models, the controller provides a load during grid failure (on/off set points only), or to slow a turbine in advance of braking.

The VS6K/600 model provides for short circuit braking during grid failure. The dump load is applied 100% for 3 seconds prior to short circuit braking.

Relay Disconnect / Short Circuit Brake

Wind turbines are usually designed to either be loaded and braked in the event of excess wind, or left open circuit (e.g. with pitch control) to protect the inverter. Depending on the configuration, our controller can provide either a short circuit brake or a disconnect contactor.

- **Short Circuit Brake** – A dump load is applied and the controller waits for RPM to fall below a threshold before applying a short circuit to stop the turbine
- **Open Circuit** – In the event of over-voltage, the turbine is disconnected. When the turbine voltage has fallen again to a safe level for the inverter, a soft-start circuit brings DC voltage up slowly to prevent inrush current and damage to the inverter before full re-connection

Data Logging

When a fault has occurred, datalogging can indicate the nature of the fault and online monitoring can often provide early warning of impending system failure. The controller stores logs for 1 year to an on-board micro-SD card. Logged information includes;

- Turbine RPM (as frequency), both average and peak
- Turbine DC Voltage
- Power Exported (based on pulses from meter)
- Wind Speed (if anemometer present)
- Controller brake, dump load and any fault status
- Turbine phase loss detection
- Inverter Status including;
 - AC Voltage & Current
 - DC Voltage & Current

Rectifier and Capacitors

The controllers come with a range of options for rectifier and capacitor sizes depending on power and working voltage.

AC Grid Detection

The controller can respond to grid failure or inverter failure and shut down the turbine accordingly.

LCD Screen

A panel LCD screen provides basic information on turbine status.

E-Stop

Connection provided for external Stop/Start switch.



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Environment Protection

The enclosure is IP66 rated as standard.

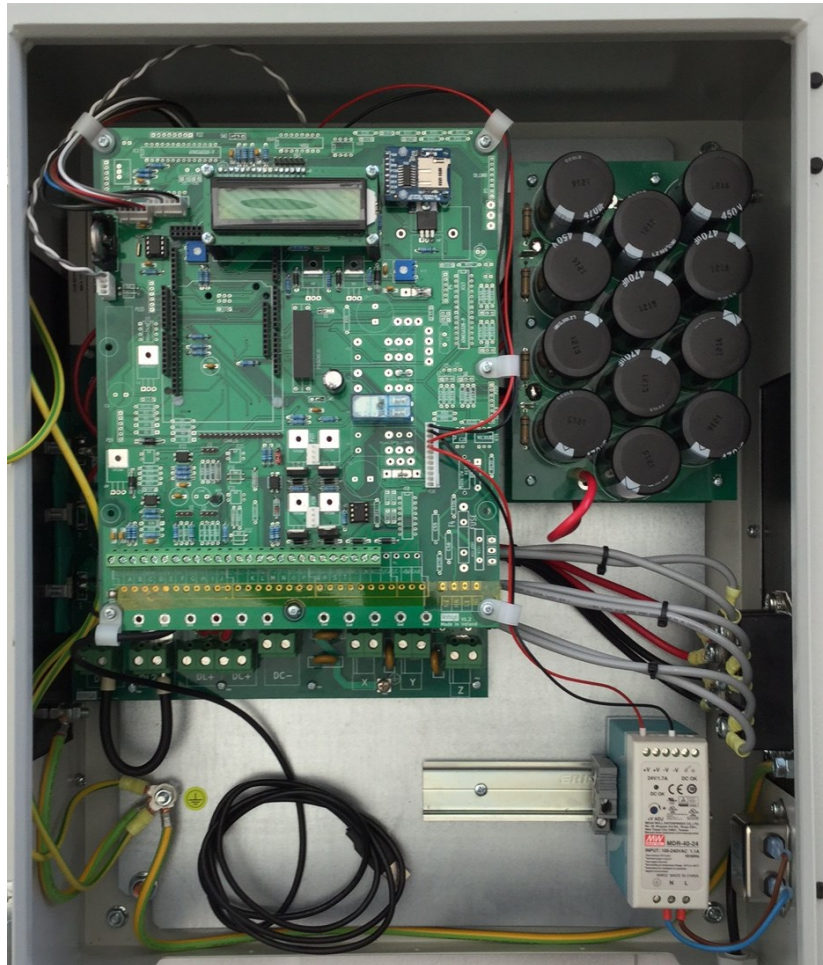
Connections:

Connections are provided for;

- Turbine Input
- DC Output to inverter
- RS485 Connection for inverter(s)
- Anemometer Connection
- Dump Load DC
- Remote Control to stop inverter when required

RS485 Output

In addition to data-logging the inverter information, this signal is used to control the solar inverter. A power curve is entered into the controller, not the inverter. The controller tells the inverter the amount of power to export to the grid. Voltsys controllers include software with a 20 point power table for the turbine, based on either DC voltage or RPM. This is translated by the controller and communicated to the inverter to ensure that power harvested matches power available from the turbine.



Specifications

Model No	VS6K/600	VS25K/Disc800	VS25K/DL800
Rating	5-6kW	25kW	25kW
Input Voltage Max	410V RMS 200Hz	600V RMS 200Hz	600V RMS 200Hz
Input Current Max	20A	60A	60A
Output DC voltage (max)	580VDC	800VDC	800VDC
Output DC current (max)	20A	80A	80A
Diversion Load current	20A	Disconnect Contactor	50A
Capacitance	470uF to 1000uF	2820uF	2820uF
AC Power Supply	115V(0.2A) or 230V (0.1A)	100-240VAC (1.1A)	100-240VAC (1.1A)
Temp.	-10C ~ 40C	-10C ~ 40C	-10C ~ 40C
Weight	9.5KG	21KG	21KG
Dimensions	470x330x160mm	570x450x210	570x500x210

Voltsys is a trading name of Turbotricity Ltd., Regd. in Ireland No. 465474 www.voltsys.com

Irish Office: Coomanore North, Bantry, Co. Cork, Rep. of Ireland. ☎ +353 (0)27 52773

UK Office: Mars Jones Bldg, 1 Vale Park, Colomendy Ind. Est., Denbigh, LL16 5TA. ☎ +44(0)151 3245588