Controllis
Perpetual Power

RSC-HMU

Remote System Controller Hybrid Management Unit

Overview

The Controllis RSC-HMU is an advanced DC Generator and hybrid system controller solution which provides accurate and reliable telemetry, remote-control and charging and voltage management capability to DC Generators on Telecoms sites.

The RSC-HMU has a wide range of internal charging algorithms for use with different battery chemistry and modes of operation. The RSC-HMU can operate in stand-alone mode or interface into the Controllis Remote Management Server (RMS).The RMS manages all alarms, security and configuration of the remote RSC-HMU units. The RSC-HMU incorporates two separate CPUs for managing and monitoring real-time applications and taking autonomous local actions when required. Communications to and from the RSC HMU can be implemented in a number of ways: using the on-board 9 band cellular modem; via VHF/UHF, microwave or satellite backhaul using the unit's Ethernet or serial interfaces. The I/O to and from the RSC-HMU is via a wide range of Industry Standard digital and analog interfaces.

DC Generator Management

The RSC-HMU is designed specifically to interface with the Controllis DCPrimePower® range of high efficiency DC output permanent magnet generators (PMG). The RSC-HMU communicates with the PMG via a SAE J1939 CanBus interface and in turn controls Controllis' variable-speed engine-controller. Such an integrated approach ensures the whole system maintains an accuracy of 100mV on sites with multiple generators. The RSC-HMU operates in an automated load-sharing mode when required. The RSC-HMU monitors all critical engine temperatures, fluid levels and running conditions. Where alarm conditions arise the RSC-HMU can be configured to notify support personnel via SMS and email. In systems where remote monitoring software is installed, notifications are forwarded using industry standard SNMP messaging. In extreme situations where continued operation would result in damage to the engine the RSC-HMU shuts down the system.

Renewable Power Systems Management

Solar and wind power systems are increasingly used to provide part of the power required to run telecoms sites. The RSC-HMU interfaces with a wide range of industry solar and wind controllers providing remote-systems information on the performance of renewable power sources, starting the generators when they are failing to meet demand and feeding back performance information to the central management system.

Hybrid Charging Management

Providing accurate and correct charging into expensive deep cycle battery banks is critical to their longevity. The RSC-HMU can be programmed to charge any type of battery chemistry used in telecoms in full accordance with battery-manufacturers' instructions. The RSC-HMU also provides a continuous log of the critical battery conditions over the life of a deployment. As standard the RSC-HMU employs temperature compensated charging and also automated battery conditioning charging.

Local Management Interface

The RSC-HMU can be configured remotely or locally. Local configuration is possible using the any standard web browser to access the an inbuilt web console. It is also possible to configure the RSC-HMU directly using a configuration menu that is accessible via keys on the front of the unit. The local access can be optionally secured by the use of a security dongle system. Remote access is available using the native Controllis RMS application, and also from external software using standard SNMP and MODBUS messaging.

Logging & Maintenance Records

The RSC-HMU has local solid-state storage that can log over a year's worth of operating data. Logged data can be retrieved remotely or locally and analysed using Controllis offline analysis tools.
The RSC-HMU can also record the generator's entire maintenance history, allowing operators to record and monitor the performance of maintenance personnel and sub-contractors.

Fuel Usage and Theft Monitoring

The RSC-HMU interfaces into a highly accurate ultrasonic fuel-level sensor: to provide accurate measurement-readings of fuel consumption including the ability to raise alarms when fuel is being stolen.

Additional Site Monitoring

Other on-site equipment can be interfaced into the RSC-HMU for remote monitoring such as DC Air Conditioning systems, door and gate alarms, tower lights, CCTV, Intruder alarms and flooding indicators.

Specifications

Communications	
LTE (Optional)	700/800/900/1800/2100/2600 MHz
UMTS/HSPA	850/900/1700/1900/2100MHz
GSM/EDGE/GPRS	850/900/1800/1900MHz
GPS	28 Channel Receiver
Ethernet	10/100 x 2Managed VLAN
USB	1 xUSB 2.0

Analog Sensor Inputs	
Thermocouple Inputs	7
Analog Sensor Interfaces	8
4-20mA support	Yes
0-5 V support	Yes
0-10 V	Yes
DC Voltage Measurement	2
DC Current Measurement	2
AC Voltage Measurement	2
AC Frequency Measurement	2

Digital Sensor Interfaces	
RS232	Yes
RS485 MODBUS	2
CAN Bus SAE J1939	2
External Relay Controllers	6
2.5 V PWM Interface	Yes
DC Power Measurement	Yes
3.3 V GPIO	10
Stepper Motor Driver	Yes
Engine RPM sensing	Yes

Physical & Environmental Parameters	
MMI	4 x 20 line LCD with 6 pushbuttons
Height	107 mm
Width	134 mm
Depth	53 mm
Weight	650 g
DC Power Input	12-24V
Operating Temperature Range	-10°C to 50°C (down to -40°C when supported with optional heater)
Operating Humidity	5% - 90% RH

Central Management

Proprietary Controllis server and database. Refer to Remote Management Server datasheet for specifications.

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