



User Manual

PROTOCONMB-V

Serial Modbus Protocol Converter

For use with Innovative Energies DC power supply/chargers
(dual battery string SR250-V)

Supports Serial Modbus RTU

Revision: 1

Revision Date: Nov 2009

Publisher: DoZeener Controls

Document Code: DZC-PCON-0030004-EM-01

TABLE OF CONTENTS

TABLE OF CONTENTS	2
INTRODUCTION	3
SERIAL MODBUS RTU PROTOCOL	3
WIRING DIAGRAM	4
RESETTING TO DEFAULT COMMUNICATION PARAMETERS	4
PROGRAMMING CABLE	5
MODBUS REGISTER SET	6
REVISION HISTORY	9

INTRODUCTION



This product must be used with Innovative Energies power supplies with a serial interface.

The 'Dual Battery String Power MBLink' software is used to configure the Modbus address and baud rate of the interface.

Also it is a useful tool to monitor real time the various Innovative Energies power supply parameters via the PROTOCONMB-V Modbus port.

SERIAL MODBUS RTU PROTOCOL

The PROTOCONMB-V module is compatible with the following modbus function codes:

03 – Read Holding Registers

06 – Preset Single Register

16 – Preset Multiple Registers

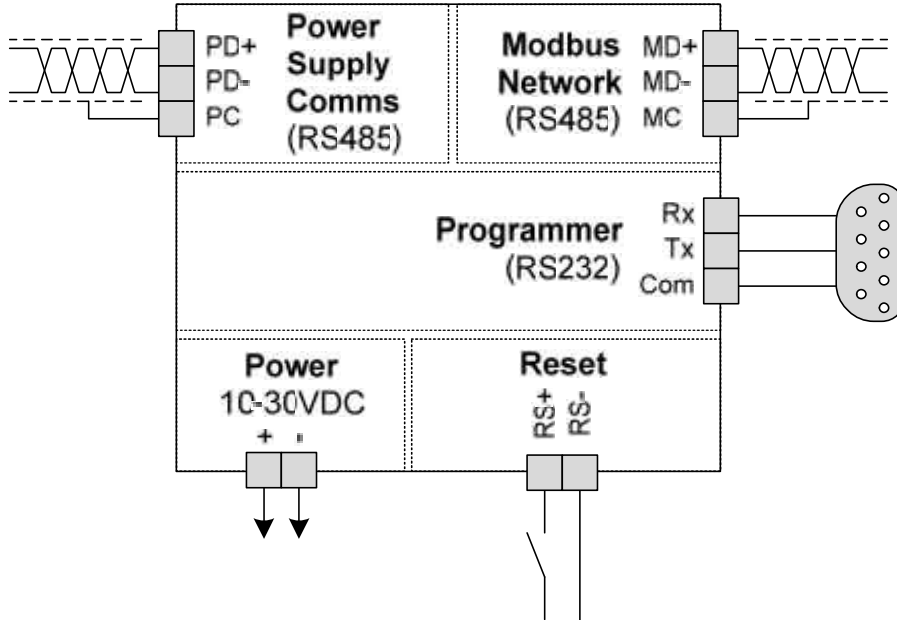
22 – Mask Write 4X Register

A maximum of 30 register can be polled at one time using function 03

A maximum of 5 register can be preset at one time using function 06

Modbus ASCII Mode is not supported.

WIRING DIAGRAM



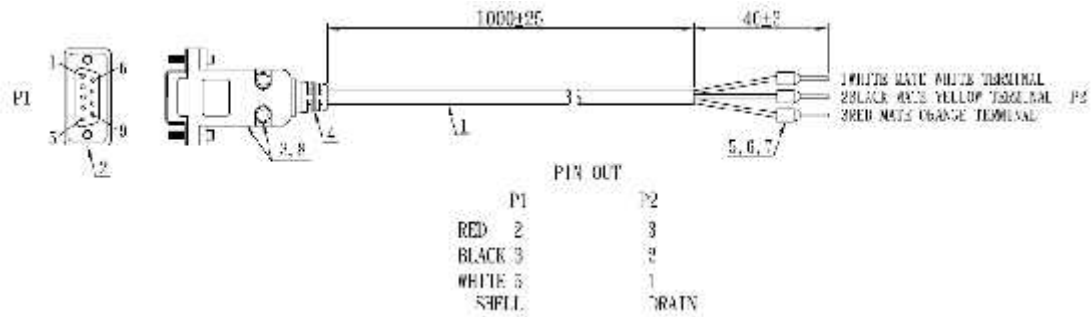
RESETTING TO DEFAULT COMMUNICATION PARAMETERS

To reset to the default communication settings of

- Modbus address 1
- Baud rate 9600
- No parity
- 8 data bits and
- 1 stop bit

The reset connections RS+ and RS- must be shorted while powering up the device, then removed after approximately 5 seconds.

PROGRAMMING CABLE



Connections to protocol Converter

- White – Common
- Black – RX
- Red – TX

MODBUS REGISTER SET

Reference	Modbus Address	Description	Type	Read/Write
General				
PS1_Watchdog	40001	Watchdog	Register	R
Unused	40002	Unused	Register	R
Unused	40003	Unused	Register	R
Unused	40004	Unused	Register	R
Unused	40005	Unused	Register	R
Unused	40006	Unused	Register	R
Unused	40007	Unused	Register	R
Unused	40008	Unused	Register	R
Unused	40009	Unused	Register	R
PS1_CC	40010:1	Charge Cycle (Normal Operation)	Bit	R
PS1_MQ	40010:2	Power Supply or Mains Failed (Brown Out)	Bit	R
PS1_MF	40010:3	Mains Failure	Bit	R
PS1_OL	40010:4	Overload	Bit	R
PS1_SD	40010:5	System Down	Bit	R
PS1_BCTEnabled	40010:6	Battery Condition Test Enabled	Bit	R
PS1_BCTDisabled	40010:7	Battery Condition Test Disabled	Bit	R
Spare	40010:8	Spare	Bit	R
PS1_Ret	40010:9	Retry Battery Test on Fail	Bit	R
PS1_TempSign	40010:10	Temperature Sign (1 = Negative, 0 = Positive)	Bit	R
PS1_TempResetAck	40010:11	Temperature Log Reset Ack	Bit	R
PS1_BattBadClearAck	40010:12	Clear Battery Bad Ack	Bit	R
PS1_BCTStartAck	40010:13	Battery Condition Test Start Ack	Bit	R
PS1_BCTStopAck	40010:14	Battery Condition Test Stop Ack	Bit	R
PS1_BCTEnableAck	40010:15	Battery Condition Test Enable Ack	Bit	R
PS1_BCTDisableAck	40010:16	Battery Condition Test Disable Ack	Bit	R
Battery String 1				
PS1_B1_NxtBCT	40011:1	Battery 1 Next BCT	Bit	R
PS1_B1_BP	40011:2	Battery 1 Present	Bit	R
PS1_B1_Charge	40011:3	Battery 1 Charging	Bit	R
PS1_B1_Discharge	40011:4	Battery 1 Discharging	Bit	R
PS1_B1_Rest	40011:5	Battery 1 Resting	Bit	R
PS1_B1_BL	40011:6	Battery 1 Low	Bit	R
PS1_B1_BM	40011:7	Battery 1 Missing	Bit	R
PS1_B1_BO	40011:8	Battery 1 OK	Bit	R

Reference	Modbus Address	Description	Type	Read/Write
PS1_B1_BCT	40011:9	Battery 1 Condition Testing	Bit	R
PS1_B1_BB	40011:10	Battery 1 Bad	Bit	R
Spare	40011:11	Spare	Bit	R
PS1_MaxTempSign	40011:12	Max Temperature Recorded Sign (1 = Negative, 0 = Positive)	Bit	R
PS1_MinTempSign	40011:13	Min Temperature Recorded Sign (1 = Negative, 0 = Positive)	Bit	R
PS1_BattNextToggleAck	40011:14	Toggle BCT Command Ack	Bit	R
PS1_CommsFail	40011:15	Communications Failure to Power Supply	Bit	R
PS1_CommsOK	40011:16	Communications OK to Power Supply	Bit	R
Battery String 2				
PS1_B2_NxtBCT	40012:1	Battery 2 Next BCT	Bit	R
PS1_B2_BP	40012:2	Battery 2 Present	Bit	R
PS1_B2_Charge	40012:3	Battery 2 Charging	Bit	R
PS1_B2_Discharge	40012:4	Battery 2 Discharging	Bit	R
PS1_B2_Rest	40012:5	Battery 2 Resting	Bit	R
PS1_B2_BL	40012:6	Battery 2 Low	Bit	R
PS1_B2_BM	40012:7	Battery 2 Missing	Bit	R
PS1_B2_BO	40012:8	Battery 2 OK	Bit	R
PS1_B2_BCT	40012:9	Battery 2 Condition Testing	Bit	R
PS1_B2_BB	40012:10	Battery 2 Bad	Bit	R
Spare	40012:11	Spare	Bit	R
Spare	40012:12	Spare	Bit	R
Spare	40012:13	Spare	Bit	R
Spare	40012:14	Spare	Bit	R
Spare	40012:15	Spare	Bit	R
Spare	40012:16	Spare	Bit	R
General Controls				
PS1_BCTStart	40013:1	Start Battery Condition Test Command	Bit	R/W
PS1_BCTStop	40013:2	Stop Battery Condition Test Command	Bit	R/W
PS1_BCTEnable	40013:3	Enable Battery Condition Test Command	Bit	R/W
PS1_BCTDisable	40013:4	Disable Battery Condition Test Command	Bit	R/W
PS1_TempReset	40013:5	Temperature Log Reset Command	Bit	R/W
PS1_BattBadClear	40013:6	Clear Battery Bad Command	Bit	R/W
PS1_BattNextToggle	40013:7	Toggle BCT Command	Bit	R/W
Spare	40013:8	Spare	Bit	R
Spare	40013:9	Spare	Bit	R
Spare	40013:10	Spare	Bit	R

Reference	Modbus Address	Description	Type	Read/Write
Spare	40013:11	Spare	Bit	R
Spare	40013:12	Spare	Bit	R
Spare	40013:13	Spare	Bit	R
Spare	40013:14	Spare	Bit	R
Spare	40013:15	Spare	Bit	R
Spare	40013:16	Spare	Bit	R
Analogue Parameters				
PS1_Vout	40014	Output Voltage (Scaled 1:10; 245 = 24.5 Volts)	Register	R
PS1_Ibat	40015	Battery Current (Scaled 1:10; 123 = 12.3 Amps)	Register	R
PS1_Ipsu	40016	Power Supply Current (Scaled 1:10; 123 = 12.3 Amps)	Register	R
PS1_Temp	40017	Temperature (in DegC)	Register	R
Analogue Settings				
PS1_BatDetect	40018	Time in minutes between battery detect tests (in mins)	Register	R
PS1_Vpres	40019	Minimum voltage to detect battery presence (Scaled 1:10 in Volts)	Register	R
PS1_Vshutd	40020	Shutdown Voltage (Scaled 1:10 in Volts)	Register	R
PS1_Vbatl	40021	Battery low alarm voltage level (Scaled 1:10 in Volts)	Register	R
PS1_Vdisco	40022	Battery disconnect voltage (Scaled 1:10 in Volts)	Register	R
PS1_Bccl	40023	Battery charge current limit (Scaled 1:10 in Amps)	Register	R
PS1_BCTim	40024	Length of battery condition test (in mins)	Register	R
PS1_CC Mins	40025	Time interval between BCTs (in mins)	Register	R
PS1_CC Hrs	40026	Time interval between BCTs (in hours)	Register	R
PS1_CC Days	40027	Time interval between BCTs (in days)	Register	R
PS1_MfiBCT	40028	Mains fail check interval during BCT (in mins)	Register	R
PS1_MaxTemp	40029	Maximum Temperature Recorded (in DegC)	Register	R
PS1_MinTemp	40030	Minimum Temperature Recorded (in DegC)	Register	R

REVISION HISTORY

Revision Number	Date Revised	Revised By	Description
1	10-Dec-09	RM	Initial Revision