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**Innovative Energies**  
**Power Supply Modbus Interface Programmer**  
**'Power MBLink v1.2'**  
**And**  
**DZC-Protocon-IE1 Module**

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**User Manual**

Revision 1 (Released 13-Apr-2008)



[www.innovative.co.nz](http://www.innovative.co.nz)



[www.dozeener.com](http://www.dozeener.com)

## Introduction

This software must be used with the product – Innovative Energies Power Supply Modbus Interface, part number DZC-Protocon-IE1.

The ‘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 DZC-Protocon-IE1 Modbus port.

## Serial Modbus RTU Protocol

The DZC-Protocon-IE1 module is compatible with the following modbus function codes:

03 – Read Holding Registers

06 – Preset Single Register

16 – Preset Multiple Registers

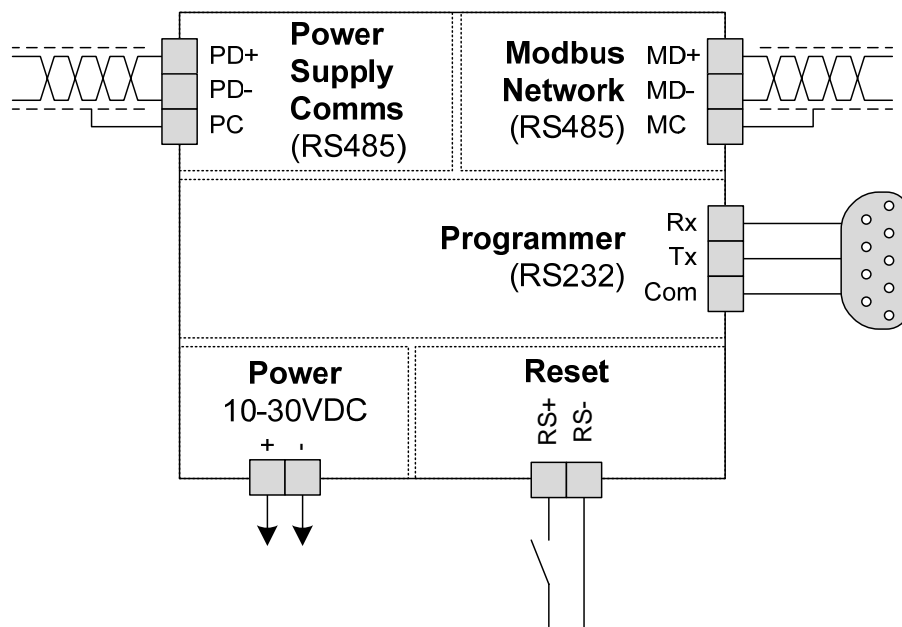
22 – Mask Write 4X Register

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.

**Modbus Register Set**

<b>Modbus Register Set</b>				
<b>From Address</b>	<b>To Address</b>	<b>Description</b>		
40001	40010	General Monitoring		
40011	40030	Monitoring and Control for Power Supply 1		
40031	40050	Monitoring and Control for Power Supply 2 (Future)		
40051	40070	Monitoring and Control for Power Supply 3 (Future)		
40071	40090	Monitoring and Control for Power Supply 4 (Future)		
<b>Reference</b>	<b>Modbus Address</b>	<b>Description</b>	<b>Type</b>	<b>Read/Write</b>
		<b>General</b>		
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
Unused	40010	Unused	Register	R
		<b>Power Supply 1</b>		
CC	40011:1	Charge Cycle (Normal Operation)	Bit	R
OL	40011:2	Overload	Bit	R
MF	40011:3	Mains Failure	Bit	R
BCT	40011:4	Battery Condition Test	Bit	R
BP	40011:5	Battery Present	Bit	R
BM	40011:6	Battery Missing	Bit	R
BL	40011:7	Battery Low	Bit	R
BB	40011:8	Battery Bad	Bit	R
M?	40011:9	Power Supply or Mains Failed (Brown Out)	Bit	R
B?	40011:10	Possibly Battery Missing	Bit	R
SD	40011:11	System Down	Bit	R
BO	40011:12	Battery OK during mains/psu fail	Bit	R
Bcond	40011:13	Battery Condition Test Enabled	Bit	R
Ret	40011:14	Retry Battery Test on Fail	Bit	R
TempSign	40011:15	Temperature Sign (1 = Negative, 0 = Positive)	Bit	R
BatSign	40011:16	Battery Current Sign (1 = Out, = 0 In)	Bit	R
BCT Start	40012:1	Battery Condition Test Started	Bit	R
BCT Stop	40012:2	Battery Condition Test Stopped	Bit	R
BCT Enable	40012:3	Battery Condition Test Enabled	Bit	R
BCT Disable	40012:4	Battery Condition Test Disabled	Bit	R
CommsF	40012:5	Communications Failure to Power Supply	Bit	R
Spare	40012:6	Spare	Bit	R
Spare	40012:7	Spare	Bit	R
Spare	40012:8	Spare	Bit	R
b?	40012:9	Possibly Battery Missing (Battery Bad)	Bit	R
bM	40012:10	Battery Missing (Battery Bad)	Bit	R

Reference	Modbus Address	Description	Type	Read/Write
bO	40012:11	Battery OK during mains/psu fail (Battery Bad)	Bit	R
bL	40012:12	Battery Low (Battery Bad)	Bit	R
bP	40012:13	Battery Present (Battery Bad)	Bit	R
Spare	40012:14	Spare	Bit	R
Spare	40012:15	Spare	Bit	R
Spare	40012:16	Spare	Bit	R
BCT Start	40013:1	Start Battery Condition Test	Bit	R/W
BCT Stop	40013:2	Stop Battery Condition Test	Bit	R/W
BCT Enable	40013:3	Enable Battery Condition Test	Bit	R/W
BCT Disable	40013:4	Disable Battery Condition Test	Bit	R/W
Spare	40013:5	Spare	Bit	R
Spare	40013:6	Spare	Bit	R
Spare	40013:7	Spare	Bit	R
Spare	40013:8	Spare	Bit	R
Spare	40013:9	Spare	Bit	R
Spare	40013:10	Spare	Bit	R
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
Vout	40014	Output Voltage	Register	R
Ibat	40015	Battery Current	Register	R
Ipsu	40016	Power Supply Current	Register	R
Temp	40017	Temperature	Register	R
BatDetect	40018	Time in minutes between battery detect tests (in mins)	Register	R
Vpres	40019	Minimum voltage to detect battery presence (in Volts)	Register	R
Vshutd	40020	Shutdown Voltage (in Volts)	Register	R
Vbatl	40021	Battery low alarm voltage level (in Volts)	Register	R
Vdisco	40022	Battery disconnect voltage (in Volts)	Register	R
Bccl	40023	Battery charge current limit (in %)	Register	R
BCTim	40024	Length of battery condition test (in mins)	Register	R
CC Mins	40025	Time interval between BCTs (in mins)	Register	R
CC Hrs	40026	Time interval between BCTs (in hours)	Register	R
CC Days	40027	Time interval between BCTs (in days)	Register	R
MfiBCT	40028	Mains fail check interval during BCT (in mins)	Register	R
NU	40029	Spare	Register	R
NU	40030	Spare	Register	R

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