



Where Automation Connects.



**inRAX<sup>®</sup>**  
**PC56-HIST-**  
**xxxxLX**

**ControlLogix Platform**  
In-Rack PC with Data Historian

December 3, 2010

**SETUP GUIDE**

## Your Feedback Please

We always want you to feel that you made the right decision to use our products. If you have suggestions, comments, compliments or complaints about our products, documentation, or support, please write or call us.

## How to Contact Us

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PC56-HIST-xxxxLX Setup Guide

December 3, 2010

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## ProSoft Technology<sup>®</sup> Product Documentation

In an effort to conserve paper, ProSoft Technology no longer includes printed manuals with our product shipments. User Manuals, Datasheets, Sample Ladder Files, and Configuration Files are provided on the enclosed CD-ROM, and are available at no charge from our web site: [www.prosoft-technology.com](http://www.prosoft-technology.com)

Printed documentation is available for purchase. Contact ProSoft Technology for pricing and availability.

North America: +1.661.716.5100

Asia Pacific: +603.7724.2080

Europe, Middle East, Africa: +33 (0) 5.3436.87.20

Latin America: +1.281.298.9109

## PC56 Products

WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

AVERTISSEMENT - RISQUE D'EXPLOSION - AVANT DE DÉCONNECTER L'EQUIPMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DÉSIGNÉ NON DANGEREUX.

## Warnings

### ATEX Warnings and Conditions of Safe Usage

Power, Input, and Output (I/O) wiring must be in accordance with the authority having jurisdiction

- A** Warning - Explosion Hazard - When in hazardous locations, turn off power before replacing or wiring modules.
- B** Warning - Explosion Hazard - Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- C** These products are intended to be mounted in an IP54 enclosure. The devices shall provide external means to prevent the rated voltage being exceeded by transient disturbances of more than 40%. This device must be used only with ATEX certified backplanes.
- D** DO NOT OPEN WHEN ENERGIZED.

## PC56™ Battery Warning

PC56 CMOS BIOS settings are protected by a rechargeable battery during power-down situations. The battery must be fully charged before you change BIOS settings. You must keep the unit powered up for a full 20 hours in order to obtain full charge capacity. If the battery is not fully charged, changes to BIOS settings may be lost when the PC56 is removed from its power source. In this situation, the PC56 reverts to its default BIOS settings when power is re-applied.

If the battery is discharged, or the battery enable jumper is removed, the BAT LED will be illuminated red. A fully charged battery should maintain the BIOS settings for 15 days without power.

## PC56 Markings

### Electrical Ratings

- Backplane Current Load on PC56: 1 A @ 5 Vdc
- Backplane Current Load on IDE: 1 A @ 5 Vdc
- Operating Temperature: 0°C to 60°C (32°F to 140°F)
- Storage Temperature: -40°C to 85°C (-40°F to 185°F)
- Shock: 30 g Operational; 50 g non-operational; Vibration: 5 g from 10 Hz to 150 Hz
- Relative Humidity 5% to 95% (without condensation)
- All phase conductor sizes must be at least 1.3 mm(squared) and all earth ground conductors must be at least 4mm(squared).

### Label Markings

II 3 G

Ex nA IIC X

0° C <= Ta <= 60° C

II - Equipment intended for above ground use (not for use in mines).

3 - Category 3 equipment, investigated for normal operation only.

G - Equipment protected against explosive gasses.

### Agency Approvals and Certifications

CE	EMC-EN61326-1:2006; EN6100-6-4:2007
CSA/cUL	C22.2 No. 213-1987
CSA CB Certified	IEC61010
ATEX	EN60079-0 Category 3, Zone 2 EN60079-15



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# Contents

Your Feedback Please.....	2
How to Contact Us.....	2
ProSoft Technology® Product Documentation.....	2
PC56 Products.....	3
Warnings.....	3
PC56™ Battery Warning.....	3
PC56 Markings.....	3
<b>1 Installing the PC56 Embedded PC</b>	<b>7</b>
1.1 Package Contents.....	8
1.2 Installing Modules.....	9
1.3 Optional Module Connections.....	10
1.4 Verify Jumper Settings.....	11
1.4.1 RS-232 (Default).....	11
1.4.2 RS-422 Jumper Setting.....	11
1.4.3 RS-485 Jumper Setting.....	12
1.4.4 Cable Connections.....	12
<b>2 Connecting Peripherals</b>	<b>19</b>
2.1 Verify Operation.....	20
<b>3 Support, Service &amp; Warranty</b>	<b>21</b>
Contacting Technical Support.....	21
3.1 Return Material Authorization (RMA) Policies and Conditions.....	23
3.1.1 Returning Any Product.....	23
3.1.2 Returning Units Under Warranty.....	24
3.1.3 Returning Units Out of Warranty.....	24
3.2 LIMITED WARRANTY.....	25
3.2.1 What Is Covered By This Warranty.....	25
3.2.2 What Is Not Covered By This Warranty.....	26
3.2.3 Disclaimer Regarding High Risk Activities.....	26
3.2.4 Intellectual Property Indemnity.....	27
3.2.5 Disclaimer of all Other Warranties.....	27
3.2.6 Limitation of Remedies **.....	28
3.2.7 Time Limit for Bringing Suit.....	28
3.2.8 No Other Warranties.....	28
3.2.9 Allocation of Risks.....	28
3.2.10 Controlling Law and Severability.....	28
<b>Index</b>	<b>29</b>



# 1 Installing the PC56 Embedded PC

## *In This Chapter*

❖ Package Contents .....	8
❖ Installing Modules .....	9
❖ Optional Module Connections .....	10
❖ IRQ 15 .....	11
❖ Verify Jumper Settings .....	11

This Setup Guide will help you get your PC56 Embedded PC up and running. If you need additional information, refer to the user manual located on the PC56-HIST CD-ROM shipped with your module.

## 1.1 Package Contents

Your new PC56 Embedded PC is shipped with the following:

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PC56 Embedded PC

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All modules fit into standard slots on the ControlLogix backplane. The PC56 Historian and its IDE module will each take a slot on the ControlLogix backplane. You will need two available side-by-side slots on the backplane.

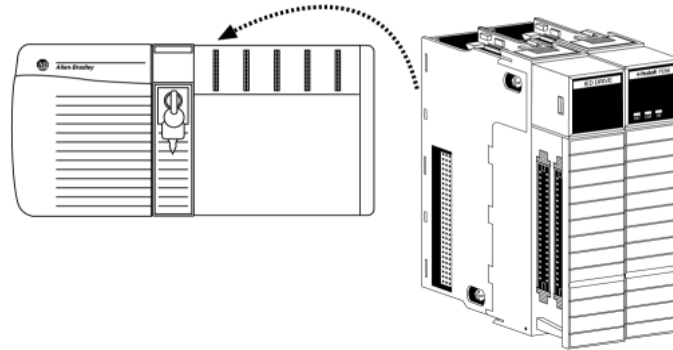
To install the PC56 Historian module:

- 1 Check jumper configurations (page 17, page 11, page 12, page 11) on each module
- 2 Insert module in the ControlLogix rack (page 9)
- 3 Connect your Peripherals (page 19)
- 4 Verify Boot Up (page 20)

## 1.2 Installing Modules

**Caution:** Although the PC56 Historian is hot-swappable, it is NOT recommended that you insert the module into the rack while power to the rack is on. Shut down power to the ControlLogix rack before performing this step.

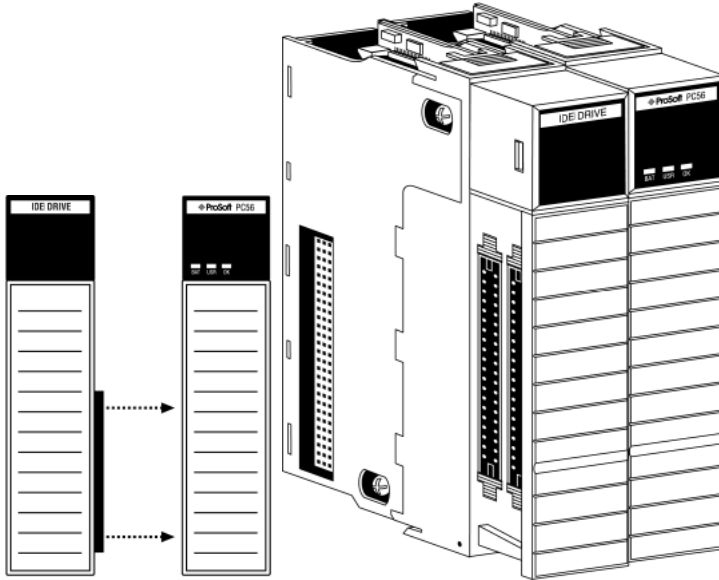
Align the module(s) with the top and bottom guides of the backplane and slide them into the rack until the module is firmly seated in the backplane connector. With a firm but steady push, snap the module(s) into place.



If you are inserting multiple modules, make sure that all of the modules are aligned with their respective slots before you snap them into place.

### 1.3 Optional Module Connections

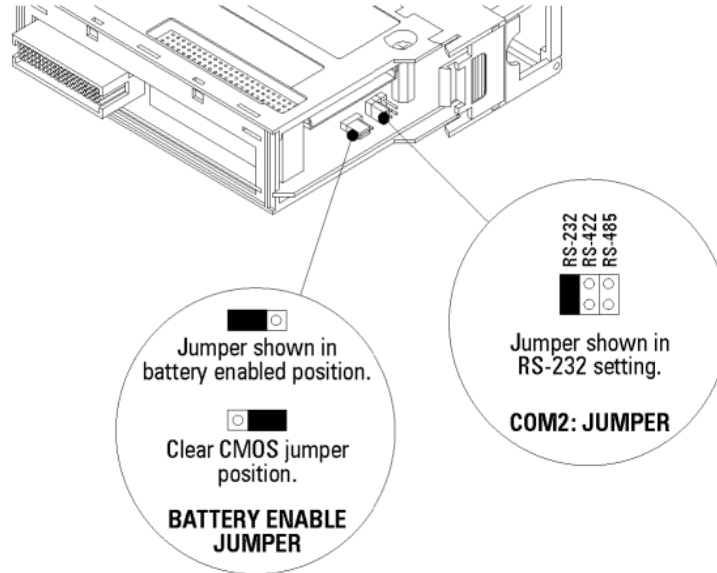
Optional modules must be connected to the PC56 Embedded PC using a side connect connection. Refer to the following diagrams:



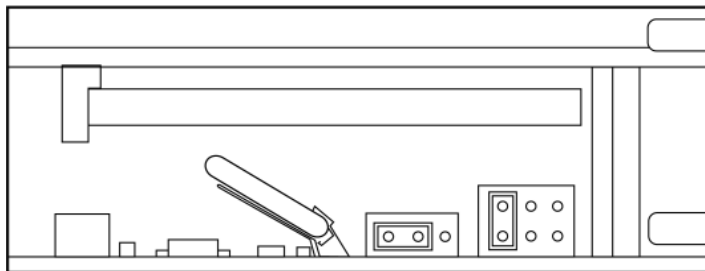
Insert the side-connect connector into the connector on the side of the PC56 as shown in the diagram. Be careful when inserting the connector as improper insertion may cause damage to the pins.

## 1.4 Verify Jumper Settings

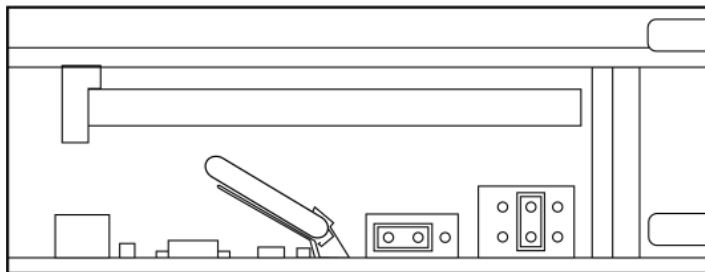
Jumpers are preconfigured, and in most cases, should not be changed. The following diagrams show the jumper configurations for the PC56 HIST module.



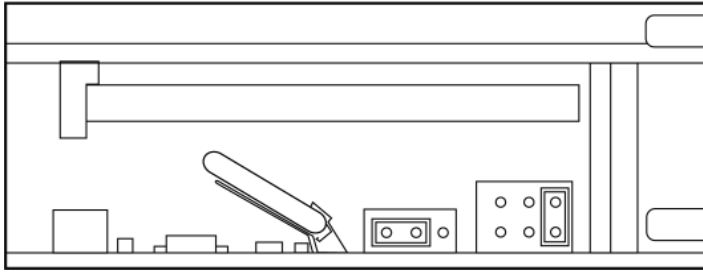
### 1.4.1 RS-232 (Default)



### 1.4.2 RS-422 Jumper Setting



### 1.4.3 RS-485 Jumper Setting



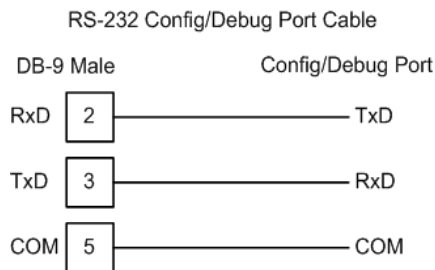
### 1.4.4 Cable Connections

The application ports on the PC56-HIST module support RS-232, RS-422, and RS-485 interfaces. Please inspect the module to ensure that the jumpers are set correctly to correspond with the type of interface you are using.

**Note:** When using RS-232 with radio modem applications, some radios or modems require hardware handshaking (control and monitoring of modem signal lines). Enable this in the configuration of the module by setting the UseCTS parameter to 1.

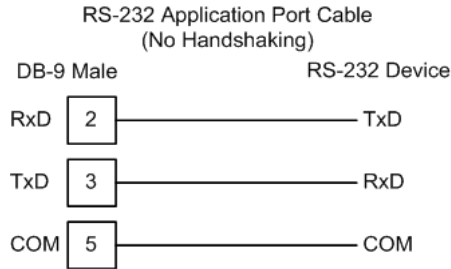
#### RS-232 Configuration/Debug Port

This port is physically an RJ45 connection. An RJ45 to DB-9 adapter cable is included with the module. This port permits a PC based terminal emulation program to view configuration and status data in the module and to control the module. The cable for communications on this port is shown in the following diagram:



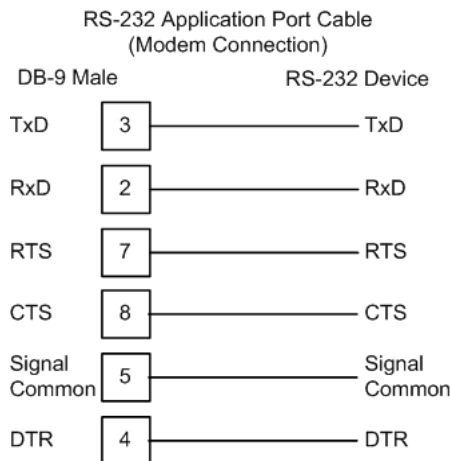
RS-232 Application Port(s)

When the RS-232 interface is selected, the use of hardware handshaking (control and monitoring of modem signal lines) is user definable. If no hardware handshaking will be used, here are the cable pinouts to connect to the port.



**RS-232: Modem Connection (Hardware Handshaking Required)**

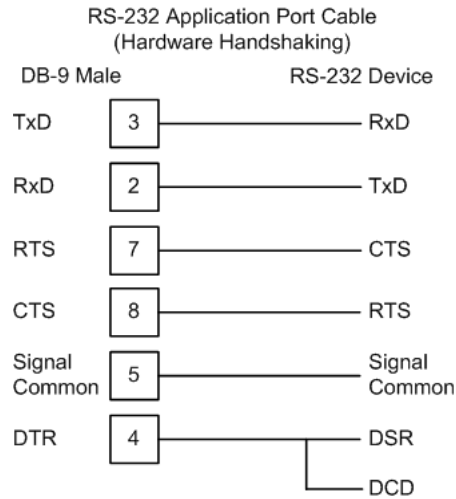
This type of connection is required between the module and a modem or other communication device.



The "Use CTS Line" parameter for the port configuration should be set to 'Y' for most modem applications.

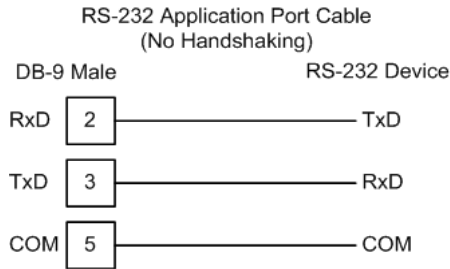
**RS-232: Null Modem Connection (Hardware Handshaking)**

This type of connection is used when the device connected to the module requires hardware handshaking (control and monitoring of modem signal lines).

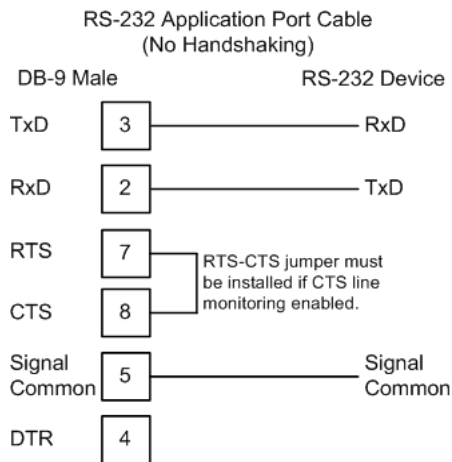


### RS-232: Null Modem Connection (No Hardware Handshaking)

This type of connection can be used to connect the module to a computer or field device communication port.

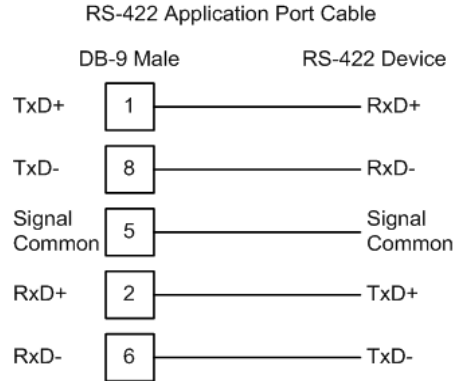


**Note:** For most null modem connections where hardware handshaking is not required, the *Use CTS Line* parameter should be set to **N** and no jumper will be required between Pins 7 (RTS) and 8 (CTS) on the connector. If the port is configured with the *Use CTS Line* set to **Y**, then a jumper is required between the RTS and the CTS lines on the port connection.



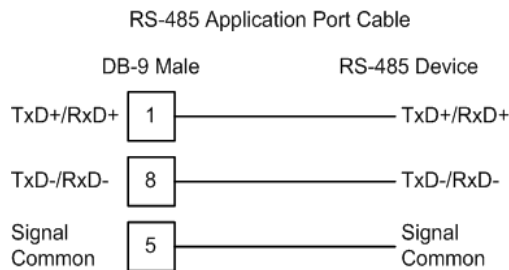
### RS-422

The RS-422 interface requires a single four or five wire cable. The Common connection is optional, depending on the RS-422 network devices used. The cable required for this interface is shown below:



### RS-485 Application Port(s)

The RS-485 interface requires a single two or three wire cable. The Common connection is optional, depending on the RS-485 network devices used. The cable required for this interface is shown below:

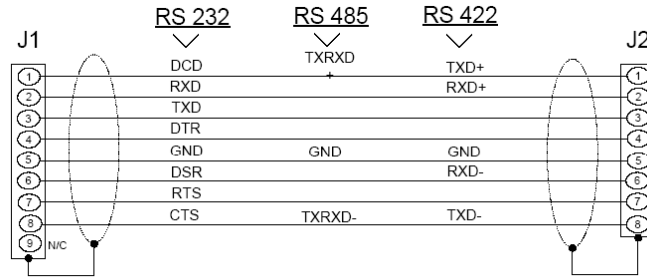
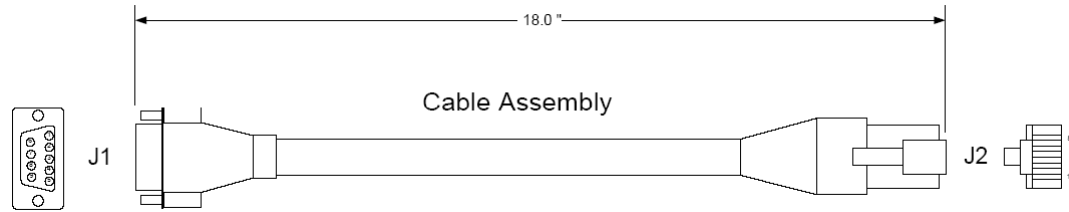


**Note:** Terminating resistors are generally not required on the RS-485 network, unless you are experiencing communication problems that can be attributed to signal echoes or reflections. In these cases, installing a 120-ohm terminating resistor between pins 1 and 8 on the module connector end of the RS-485 line may improve communication quality.

#### **RS-485 and RS-422 Tip**

If communication in the RS-422 or RS-485 mode does not work at first, despite all attempts, try switching termination polarities. Some manufacturers interpret + and -, or A and B, polarities differently.

DB9 to RJ45 Adaptor (Cable 14)



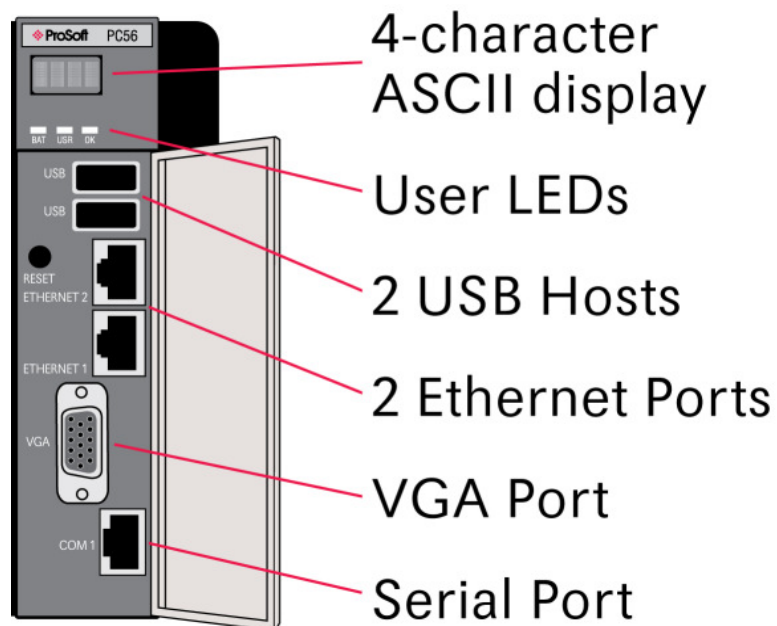
Wiring Diagram



## 2 Connecting Peripherals

Just like any other PC, the PC56 is fully equipped for connections to a variety of devices. The inside label provides descriptions of the various ports and connectors.

**Caution:** Make sure power to the ControlLogix rack is OFF before connecting peripherals to the PC56.



## 2.1 Verify Operation

- 1 Connect your peripherals such as monitor, keyboard, and mouse to the PC56 Historian using the appropriate connectors.
- 2 Turn on power to the ControlLogix rack.
- 3 The Windows desktop will appear on your monitor after boot up.

## 3 Support, Service & Warranty

### In This Chapter

- ❖ Contacting Technical Support .....21
- ❖ Return Material Authorization (RMA) Policies and Conditions.....23
- ❖ LIMITED WARRANTY.....25

### **Contacting Technical Support**

ProSoft Technology, Inc. (ProSoft) is committed to providing the most efficient and effective support possible. Before calling, please gather the following information to assist in expediting this process:

- 1 Product Version Number
- 2 System architecture
- 3 Network details

If the issue is hardware related, we will also need information regarding:

- 1 Module configuration and associated ladder files, if any
- 2 Module operation and any unusual behavior
- 3 Configuration/Debug status information
- 4 LED patterns
- 5 Details about the serial, Ethernet or fieldbus devices interfaced to the module, if any.

**Note:** For technical support calls within the United States, an after-hours answering system allows 24-hour/7-days-a-week pager access to one of our qualified Technical and/or Application Support Engineers. Detailed contact information for all our worldwide locations is available on the following page.

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<b>Internet</b>	Web Site: <a href="http://www.prosoft-technology.com/support">www.prosoft-technology.com/support</a> E-mail address: <a href="mailto:support@prosoft-technology.com">support@prosoft-technology.com</a>
<b>Asia Pacific</b> (location in Malaysia)	Tel: +603.7724.2080, E-mail: <a href="mailto:asiapc@prosoft-technology.com">asiapc@prosoft-technology.com</a> Languages spoken include: Chinese, English
<b>Asia Pacific</b> (location in China)	Tel: +86.21.5187.7337 x888, E-mail: <a href="mailto:asiapc@prosoft-technology.com">asiapc@prosoft-technology.com</a> Languages spoken include: Chinese, English
<b>Europe</b> (location in Toulouse, France)	Tel: +33 (0) 5.34.36.87.20, E-mail: <a href="mailto:support.EMEA@prosoft-technology.com">support.EMEA@prosoft-technology.com</a> Languages spoken include: French, English
<b>Europe</b> (location in Dubai, UAE)	Tel: +971-4-214-6911, E-mail: <a href="mailto:mea@prosoft-technology.com">mea@prosoft-technology.com</a> Languages spoken include: English, Hindi
<b>North America</b> (location in California)	Tel: +1.661.716.5100, E-mail: <a href="mailto:support@prosoft-technology.com">support@prosoft-technology.com</a> Languages spoken include: English, Spanish
<b>Latin America</b> (Oficina Regional)	Tel: +1-281-2989109, E-Mail: <a href="mailto:latinam@prosoft-technology.com">latinam@prosoft-technology.com</a> Languages spoken include: Spanish, English
<b>Latin America</b> (location in Puebla, Mexico)	Tel: +52-222-3-99-6565, E-mail: <a href="mailto:soporte@prosoft-technology.com">soporte@prosoft-technology.com</a> Languages spoken include: Spanish
<b>Brasil</b> (location in Sao Paulo)	Tel: +55-11-5083-3776, E-mail: <a href="mailto:brasil@prosoft-technology.com">brasil@prosoft-technology.com</a> Languages spoken include: Portuguese, English

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### **3.1 Return Material Authorization (RMA) Policies and Conditions**

The following Return Material Authorization (RMA) Policies and Conditions (collectively, "RMA Policies") apply to any returned product. These RMA Policies are subject to change by ProSoft Technology, Inc., without notice. For warranty information, see Limited Warranty (page 25). In the event of any inconsistency between the RMA Policies and the Warranty, the Warranty shall govern.

#### **3.1.1 Returning Any Product**

- a) In order to return a Product for repair, exchange, or otherwise, the Customer must obtain a Return Material Authorization (RMA) number from ProSoft Technology and comply with ProSoft Technology shipping instructions.
- b) In the event that the Customer experiences a problem with the Product for any reason, Customer should contact ProSoft Technical Support at one of the telephone numbers listed above (page 21). A Technical Support Engineer will request that you perform several tests in an attempt to isolate the problem. If after completing these tests, the Product is found to be the source of the problem, we will issue an RMA.
- c) All returned Products must be shipped freight prepaid, in the original shipping container or equivalent, to the location specified by ProSoft Technology, and be accompanied by proof of purchase and receipt date. The RMA number is to be prominently marked on the outside of the shipping box. Customer agrees to insure the Product or assume the risk of loss or damage in transit. Products shipped to ProSoft Technology using a shipment method other than that specified by ProSoft Technology, or shipped without an RMA number will be returned to the Customer, freight collect. Contact ProSoft Technical Support for further information.
- d) A 10% restocking fee applies to all warranty credit returns, whereby a Customer has an application change, ordered too many, does not need, etc. Returns for credit require that all accessory parts included in the original box (i.e.; antennas, cables) be returned. Failure to return these items will result in a deduction from the total credit due for each missing item.

### **3.1.2 Returning Units Under Warranty**

A Technical Support Engineer must approve the return of Product under ProSoft Technology's Warranty:

- a) A replacement module will be shipped and invoiced. A purchase order will be required.
- b) Credit for a product under warranty will be issued upon receipt of authorized product by ProSoft Technology at designated location referenced on the Return Material Authorization
  - i. If a defect is found and is determined to be customer generated, or if the defect is otherwise not covered by ProSoft Technology's warranty, there will be no credit given. Customer will be contacted and can request module be returned at their expense;
  - ii. If defect is customer generated and is repairable, customer can authorize ProSoft Technology to repair the unit by providing a purchase order for 30% of the current list price plus freight charges, duties and taxes as applicable.

### **3.1.3 Returning Units Out of Warranty**

- a) Customer sends unit in for evaluation to location specified by ProSoft Technology, freight prepaid.
- b) If no defect is found, Customer will be charged the equivalent of \$100 USD, plus freight charges, duties and taxes as applicable. A new purchase order will be required.
- c) If unit is repaired, charge to Customer will be 30% of current list price (USD) plus freight charges, duties and taxes as applicable. A new purchase order will be required or authorization to use the purchase order submitted for evaluation fee.

**The following is a list of non-repairable units:**

- 3150 - All
- 3750
- 3600 - All
- 3700
- 3170 - All
- 3250
- 1560 - Can be repaired, only if defect is the power supply
- 1550 - Can be repaired, only if defect is the power supply
- 3350
- 3300
- 1500 - All

## 3.2 LIMITED WARRANTY

This Limited Warranty ("Warranty") governs all sales of hardware, software, and other products (collectively, "Product") manufactured and/or offered for sale by ProSoft Technology, Incorporated (ProSoft), and all related services provided by ProSoft, including maintenance, repair, warranty exchange, and service programs (collectively, "Services"). By purchasing or using the Product or Services, the individual or entity purchasing or using the Product or Services ("Customer") agrees to all of the terms and provisions (collectively, the "Terms") of this Limited Warranty. All sales of software or other intellectual property are, in addition, subject to any license agreement accompanying such software or other intellectual property.

### 3.2.1 What Is Covered By This Warranty

- a) *Warranty On New Products:* ProSoft warrants, to the original purchaser, that the Product that is the subject of the sale will (1) conform to and perform in accordance with published specifications prepared, approved and issued by ProSoft, and (2) will be free from defects in material or workmanship; provided these warranties only cover Product that is sold as new. This Warranty expires three (3) years from the date of shipment for Product purchased **on or after** January 1st, 2008, or one (1) year from the date of shipment for Product purchased **before** January 1st, 2008 (the "Warranty Period"). If the Customer discovers within the Warranty Period a failure of the Product to conform to specifications, or a defect in material or workmanship of the Product, the Customer must promptly notify ProSoft by fax, email or telephone. In no event may that notification be received by ProSoft later than 39 months from date of original shipment. Within a reasonable time after notification, ProSoft will correct any failure of the Product to conform to specifications or any defect in material or workmanship of the Product, with either new or remanufactured replacement parts. ProSoft reserves the right, and at its sole discretion, may replace unrepairable units with new or remanufactured equipment. All replacement units will be covered under warranty for the 3 year period commencing from the date of original equipment purchase, not the date of shipment of the replacement unit. Such repair, including both parts and labor, will be performed at ProSoft's expense. All warranty service will be performed at service centers designated by ProSoft.
- b) *Warranty On Services:* Materials and labor performed by ProSoft to repair a verified malfunction or defect are warranted in the terms specified above for new Product, provided said warranty will be for the period remaining on the original new equipment warranty or, if the original warranty is no longer in effect, for a period of 90 days from the date of repair.

### **3.2.2 What Is Not Covered By This Warranty**

- a) ProSoft makes no representation or warranty, expressed or implied, that the operation of software purchased from ProSoft will be uninterrupted or error free or that the functions contained in the software will meet or satisfy the purchaser's intended use or requirements; the Customer assumes complete responsibility for decisions made or actions taken based on information obtained using ProSoft software.
- b) This Warranty does not cover the failure of the Product to perform specified functions, or any other non-conformance, defects, losses or damages caused by or attributable to any of the following: (i) shipping; (ii) improper installation or other failure of Customer to adhere to ProSoft's specifications or instructions; (iii) unauthorized repair or maintenance; (iv) attachments, equipment, options, parts, software, or user-created programming (including, but not limited to, programs developed with any IEC 61131-3, "C" or any variant of "C" programming languages) not furnished by ProSoft; (v) use of the Product for purposes other than those for which it was designed; (vi) any other abuse, misapplication, neglect or misuse by the Customer; (vii) accident, improper testing or causes external to the Product such as, but not limited to, exposure to extremes of temperature or humidity, power failure or power surges; or (viii) disasters such as fire, flood, earthquake, wind and lightning.
- c) The information in this Agreement is subject to change without notice. ProSoft shall not be liable for technical or editorial errors or omissions made herein; nor for incidental or consequential damages resulting from the furnishing, performance or use of this material. The user guide included with your original product purchase from ProSoft contains information protected by copyright. No part of the guide may be duplicated or reproduced in any form without prior written consent from ProSoft.

### **3.2.3 Disclaimer Regarding High Risk Activities**

Product manufactured or supplied by ProSoft is not fault tolerant and is not designed, manufactured or intended for use in hazardous environments requiring fail-safe performance including and without limitation: the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines or weapons systems in which the failure of the product could lead directly or indirectly to death, personal injury or severe physical or environmental damage (collectively, "high risk activities"). ProSoft specifically disclaims any express or implied warranty of fitness for high risk activities.

### **3.2.4 Intellectual Property Indemnity**

Buyer shall indemnify and hold harmless ProSoft and its employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not ProSoft is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless ProSoft and defend or settle any action brought against such Companies to the extent based on a claim that any Product made to Buyer specifications infringed intellectual property rights of another party. ProSoft makes no warranty that the product is or will be delivered free of any person's claiming of patent, trademark, or similar infringement. The Buyer assumes all risks (including the risk of suit) that the product or any use of the product will infringe existing or subsequently issued patents, trademarks, or copyrights.

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- b) ProSoft's technical specifications and documentation that are included with the Product are subject to editing and modification without notice.
- c) Transfer of title shall not operate to convey to Customer any right to make, or have made, any Product supplied by ProSoft.
- d) Customer is granted no right or license to use any software or other intellectual property in any manner or for any purpose not expressly permitted by any license agreement accompanying such software or other intellectual property.
- e) Customer agrees that it shall not, and shall not authorize others to, copy software provided by ProSoft (except as expressly permitted in any license agreement accompanying such software); transfer software to a third party separately from the Product; modify, alter, translate, decode, decompile, disassemble, reverse-engineer or otherwise attempt to derive the source code of the software or create derivative works based on the software; export the software or underlying technology in contravention of applicable US and international export laws and regulations; or use the software other than as authorized in connection with use of Product.
- f) **Additional Restrictions Relating To Software And Other Intellectual Property**

In addition to compliance with the Terms of this Warranty, Customers purchasing software or other intellectual property shall comply with any license agreement accompanying such software or other intellectual property. Failure to do so may void this Warranty with respect to such software and/or other intellectual property.

### **3.2.5 Disclaimer of all Other Warranties**

The Warranty set forth in What Is Covered By This Warranty (page 25) are in lieu of all other warranties, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

### **3.2.6 Limitation of Remedies \*\***

In no event will ProSoft or its Dealer be liable for any special, incidental or consequential damages based on breach of warranty, breach of contract, negligence, strict tort or any other legal theory. Damages that ProSoft or its Dealer will not be responsible for include, but are not limited to: Loss of profits; loss of savings or revenue; loss of use of the product or any associated equipment; loss of data; cost of capital; cost of any substitute equipment, facilities, or services; downtime; the claims of third parties including, customers of the Purchaser; and, injury to property.

\*\* Some areas do not allow time limitations on an implied warranty, or allow the exclusion or limitation of incidental or consequential damages. In such areas, the above limitations may not apply. This Warranty gives you specific legal rights, and you may also have other rights which vary from place to place.

### **3.2.7 Time Limit for Bringing Suit**

Any action for breach of warranty must be commenced within 39 months following shipment of the Product.

### **3.2.8 No Other Warranties**

Unless modified in writing and signed by both parties, this Warranty is understood to be the complete and exclusive agreement between the parties, suspending all oral or written prior agreements and all other communications between the parties relating to the subject matter of this Warranty, including statements made by salesperson. No employee of ProSoft or any other party is authorized to make any warranty in addition to those made in this Warranty. The Customer is warned, therefore, to check this Warranty carefully to see that it correctly reflects those terms that are important to the Customer.

### **3.2.9 Allocation of Risks**

This Warranty allocates the risk of product failure between ProSoft and the Customer. This allocation is recognized by both parties and is reflected in the price of the goods. The Customer acknowledges that it has read this Warranty, understands it, and is bound by its Terms.

### **3.2.10 Controlling Law and Severability**

This Warranty shall be governed by and construed in accordance with the laws of the United States and the domestic laws of the State of California, without reference to its conflicts of law provisions. If for any reason a court of competent jurisdiction finds any provisions of this Warranty, or a portion thereof, to be unenforceable, that provision shall be enforced to the maximum extent permissible and the remainder of this Warranty shall remain in full force and effect. Any cause of action with respect to the Product or Services must be instituted in a court of competent jurisdiction in the State of California.

# Index

## A

Allocation of Risks • 28

## C

Cable Connections • 12  
Connecting Peripherals • 8, 19  
Contacting Technical Support • 21, 23  
Controlling Law and Severability • 28

## D

DB9 to RJ45 Adaptor (Cable 14) • 17  
Disclaimer of all Other Warranties • 27  
Disclaimer Regarding High Risk Activities • 26

## H

How to Contact Us • 2

## I

Installing Modules • 8, 9  
Installing the PC56 Embedded PC • 7  
Intellectual Property Indemnity • 27

## J

Jumper Configurations for IDE Drives • 8

## L

Limitation of Remedies \*\* • 28  
LIMITED WARRANTY • 23, 25

## N

No Other Warranties • 28

## O

Optional Module Connections • 10

## P

Package Contents • 8  
PC56 Markings • 3  
PC56 Products • 3  
PC56™ Battery Warning • 3  
Pinouts • 12, 17  
ProSoft Technology® Product Documentation • 2

## R

Return Material Authorization (RMA) Policies and  
Conditions • 23  
Returning Any Product • 23  
Returning Units Out of Warranty • 24

Returning Units Under Warranty • 24  
RS-232

Modem Connection (Hardware Handshaking  
Required) • 13

Null Modem Connection (Hardware Handshaking)  
• 14

Null Modem Connection (No Hardware  
Handshaking) • 15

RS-232 Application Port(s) • 13

RS-232 (Default) • 11

RS-232 Configuration/Debug Port • 12

RS-422 • 16

RS-422 Jumper Setting • 8, 11

RS-485 and RS-422 Tip • 16

RS-485 Application Port(s) • 16

RS-485 Jumper Setting • 8, 12

## S

Support, Service & Warranty • 21

## T

Time Limit for Bringing Suit • 28

## V

Verify Jumper Settings • 8, 11

Verify Operation • 8, 20

## W

Warnings • 3

What Is Covered By This Warranty • 25, 27

What Is Not Covered By This Warranty • 26

## Y

Your Feedback Please • 2