

*TECHNICAL MANUAL  
888-2516-001*

*Xtraware™ Z Monitoring*

*Xtraware™ Z Monitoring  
Software*

**HARRIS**

T.M. No. 888-2516-001

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## Returns And Exchanges

Damaged or undamaged equipment should not be returned unless written approval and a Return Authorization is received from HARRIS Broadcast Communications Division. Special shipping instructions and coding will be provided to assure proper handling. Complete details regarding circumstances and reasons for return are to be included in the request for return. Custom equipment or special order equipment is not returnable. In those instances where return or exchange of equipment is at the request of the customer, or convenience of the customer, a restocking fee will be charged. All returns will be sent freight prepaid and properly insured by the customer. When communicating with HARRIS Broadcast Communications Division, specify the HARRIS Order Number or Invoice Number.

## Unpacking

Carefully unpack the equipment and preform a visual inspection to determine that no apparent damage was incurred during shipment. Retain the shipping materials until it has been determined that all received equipment is not damaged. Locate and retain all PACKING CHECK LISTS. Use the PACKING CHECK LIST to help locate and identify any components or assemblies which are removed for shipping and must be reinstalled. Also remove any shipping supports, straps, and packing materials prior to initial turn on.

## Technical Assistance

HARRIS Technical and Troubleshooting assistance is available from HARRIS Field Service during normal business hours (8:00 AM - 5:00 PM Central Time). Emergency service is available 24 hours a day. Telephone 217/222-8200 to contact the Field Service Department or address correspondence to Field Service Department, HARRIS Broadcast Communications Division, P.O. Box 4290, Quincy, Illinois 62305-4290, USA. Technical Support by e-mail: [tsupport@harris.com](mailto:tsupport@harris.com). The HARRIS factory may also be contacted through a FAX facility (217/221-7096).

## Replaceable Parts Service

Replacement parts are available 24 hours a day, seven days a week from the HARRIS Service Parts Department. Telephone 217/222-8200 to contact the service parts department or address correspondence to Service Parts Department, HARRIS CORPORATION, Broadcast Systems Division, P.O. Box 4290, Quincy, Illinois 62305-4290, USA. The HARRIS factory may also be contacted through a FAX facility (217/221-7096).

### NOTE:

The # symbol used in the parts list means used with (e.g. #C001 = used with C001).

# *Manual Revision History*

## *Xtraware™ Z Monitoring*

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REV.	DATE	ECN	Pages Affected
Preliminary	01/02/2002		Created
A	05/30/2003	49170	Released
A1	02/01/2007	49988	Added info for ZHD+ on page 1-2



## Guide to Using Harris Parts List Information

The Harris Replaceable Parts List Index portrays a tree structure with the major items being leftmost in the index. The example below shows the Transmitter as the highest item in the tree structure. If you were to look at the bill of materials table for the Transmitter you would find the Control Cabinet, the PA Cabinet, and the Output Cabinet. In the Replaceable Parts List Index the Control Cabinet, PA Cabinet, and Output Cabinet show up one indentation level below the Transmitter and implies that they are used in the Transmitter. The Controller Board is indented one level below the Control Cabinet so it will show up in the bill of material for the Control Cabinet. The tree structure of this same index is shown to the right of the table and shows indentation level versus tree structure level.

Example of Replaceable Parts List Index and equivalent tree structure:

Replaceable Parts List Index	Part Number	Page	
Table 7-1. Transmitter	994 9283 001	7-2	<pre> graph TD     Transmitter["Transmitter 994 9283 001"] --- ControlCabinet["Control Cabinet 992 9244 002"]     Transmitter --- PACabinet["PA Cabinet 992 9400 002"]     Transmitter --- OutputCabinet["Output Cabinet 992 9450 001"]     ControlCabinet --- ControllerBoard["Controller Board 992 8344 002"]     PACabinet --- PAAmplifier["PA Amplifier 992 7894 002"]     PAAmplifier --- PAAmplifierBoard["PA Amplifier Board 992 7904 002"]         </pre>
Table 7-2. Control Cabinet	992 9244 002	7-3	
Table 7-3. Controller Board	992 8344 002	7-6	
Table 7-4. PA Cabinet	992 9400 002	7-7	
Table 7-5. PA Amplifier	994 7894 002	7-9	
Table 7-6. PA Amplifier Board	992 7904 002	7-10	
Table 7-7. Output Cabinet	992 9450 001	7-12	

The part number of the item is shown to the right of the description as is the page in the manual where the bill for that part number starts. Inside the actual tables, four main headings are used:

- Table #-#. ITEM NAME - HARRIS PART NUMBER - this line gives the information that corresponds to the Replaceable Parts List Index entry;
- HARRIS P/N column gives the ten digit Harris part number (usually in ascending order);
- DESCRIPTION column gives a 25 character or less description of the part number;
- REF. SYMBOLS/EXPLANATIONS column 1) gives the reference designators for the item (i.e., C001, R102, etc.) that corresponds to the number found in the schematics (C001 in a bill of material is equivalent to C1 on the schematic) or 2) gives added information or further explanation (i.e., “Used for 208V operation only,” or “Used for HT 10LS only,” etc.).

Inside the individual tables some standard conventions are used:

- A # symbol in front of a component such as #C001 under the REF. SYMBOLS/EXPLANATIONS column means that this item is used on or with C001 and is not the actual part number for C001.
- In the ten digit part numbers, if the last three numbers are 000, the item is a part that Harris has purchased and has not manufactured or modified. If the last three numbers are other than 000, the item is either manufactured by Harris or is purchased from a vendor and modified for use in the Harris product.
- The first three digits of the ten digit part number tell which family the part number belongs to - for example, all electrolytic (can) capacitors will be in the same family (524 xxxx 000). If an electrolytic (can) capacitor is found to have a 9xx xxxx xxx part number (a number outside of the normal family of numbers), it has probably been modified in some manner at the Harris factory and will therefore show up farther down into the individual parts list (because each table is normally sorted in ascending order). Most Harris made or modified assemblies will have 9xx xxxx xxx numbers associated with them.

The term “SEE HIGHER LEVEL BILL” in the description column implies that the reference designated part number will show up in a bill that is higher in the tree structure. This is often the case for components that may be frequency determinant or voltage determinant and are called out in a higher level bill structure that is more customer dependent than the bill at a lower level.



**⚠ WARNING:**  
*THE CURRENTS AND VOLTAGES IN THIS EQUIPMENT ARE DANGEROUS. PERSONNEL MUST AT ALL TIMES OBSERVE SAFETY WARNINGS, INSTRUCTIONS AND REGULATIONS.*

This manual is intended as a general guide for trained and qualified personnel who are aware of the dangers inherent in handling potentially hazardous electrical/electronic circuits. It is not intended to contain a complete statement of all safety precautions which should be observed by personnel in using this or other electronic equipment.

The installation, operation, maintenance and service of this equipment involves risks both to personnel and equipment, and must be performed only by qualified personnel exercising due care. HARRIS CORPORATION shall not be responsible for injury or damage resulting from improper procedures or from the use of improperly trained or inexperienced personnel performing such tasks. During installation and operation of this equipment, local building codes and fire protection standards must be observed.

The following National Fire Protection Association (NFPA) standards are recommended as reference:

- Automatic Fire Detectors, No. 72E
- Installation, Maintenance, and Use of Portable Fire Extinguishers, No. 10
- Halogenated Fire Extinguishing Agent Systems, No. 12A

**⚠ WARNING:**  
*ALWAYS DISCONNECT POWER BEFORE OPENING COVERS, DOORS, ENCLOSURES, GATES, PANELS OR SHIELDS. ALWAYS USE GROUNDING STICKS AND SHORT OUT HIGH VOLTAGE POINTS BEFORE SERVICING. NEVER MAKE INTERNAL ADJUSTMENTS, PERFORM MAINTENANCE OR SERVICE WHEN ALONE OR WHEN FATIGUED.*

Do not remove, short-circuit or tamper with interlock switches on access covers, doors, enclosures, gates, panels or shields. Keep away from live circuits, know your equipment and don't take chances.

**⚠ WARNING:**  
*IN CASE OF EMERGENCY ENSURE THAT POWER HAS BEEN DISCONNECTED.*

**⚠ WARNING:**  
*IF OIL FILLED OR ELECTROLYTIC CAPACITORS ARE UTILISED IN YOUR EQUIPMENT, AND IF A LEAK OR BULGE IS APPARENT ON THE CAPACITOR CASE WHEN THE UNIT IS OPENED FOR SERVICE OR MAINTENANCE, ALLOW THE UNIT TO COOL DOWN BEFORE ATTEMPTING TO REMOVE THE DEFECTIVE CAPACITOR. DO NOT ATTEMPT TO SERVICE A DEFECTIVE CAPACITOR WHILE IT IS HOT DUE TO THE POSSIBILITY OF A CASE RUPTURE AND SUBSEQUENT INJURY.*

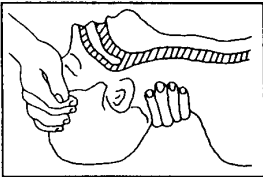
## TREATMENT OF ELECTRICAL SHOCK

1. IF VICTIM IS NOT RESPONSIVE FOLLOW THE A-B-CS OF BASIC LIFE SUPPORT.

PLACE VICTIM FLAT ON HIS BACK ON A HARD SURFACE

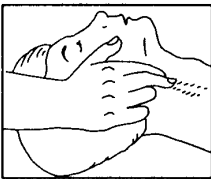
### **(A) AIRWAY**

IF UNCONSCIOUS,  
OPEN AIRWAY



LIFT UP NECK  
PUSH FOREHEAD BACK  
CLEAR OUT MOUTH IF NECESSARY  
OBSERVE FOR BREATHING

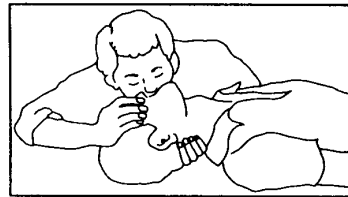
CHECK  
CAROTID PULSE



IF PULSE ABSENT,  
BEGIN ARTIFICIAL  
CIRCULATION

### **(B) BREATHING**

IF NOT BREATHING,  
BEGIN ARTIFICIAL BREATHING



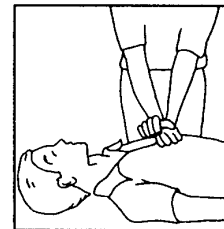
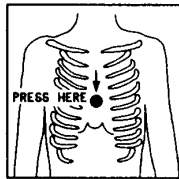
TILT HEAD  
PINCH NOSTRILS  
MAKE AIRTIGHT SEAL  
4 QUICK FULL BREATHS  
REMEMBER MOUTH TO MOUTH  
RESUSCITATION MUST BE  
COMMENCED AS SOON AS POSSIBLE

### **(C) CIRCULATION**

DEPRESS STERNUM 1 1/2 TO 2 INCHES

APPROX. RATE  
OF COMPRESSIONS { ONE RESCUER  
--80 PER MINUTE { 15 COMPRESSIONS  
2 QUICK BREATHS

APPROX. RATE  
OF COMPRESSIONS { TWO RESCUERS  
--60 PER MINUTE { 5 COMPRESSIONS  
1 BREATH



NOTE: DO NOT INTERRUPT RHYTHM OF COMPRESSIONS  
WHEN SECOND PERSON IS GIVING BREATH

CALL FOR MEDICAL ASSISTANCE AS SOON AS POSSIBLE.

2. IF VICTIM IS RESPONSIVE.

- A. KEEP THEM WARM
- B. KEEP THEM AS QUIET AS POSSIBLE
- C. LOOSEN THEIR CLOTHING
- D. A RECLINING POSITION IS RECOMMENDED



# FIRST-AID

Personnel engaged in the installation, operation, maintenance or servicing of this equipment are urged to become familiar with first-aid theory and practices. The following information is not intended to be complete first-aid procedures, it is a brief and is only to be used as a reference. It is the duty of all personnel using the equipment to be prepared to give adequate Emergency First Aid and there by prevent avoidable loss of life.

## Treatment of Electrical Burns

1. Extensive burned and broken skin
  - a. Cover area with clean sheet or cloth. (Cleanest available cloth article.)
  - b. Do not break blisters, remove tissue, remove adhered particles of clothing, or apply any salve or ointment.
  - c. Treat victim for shock as required.
  - d. Arrange transportation to a hospital as quickly as possible.
  - e. If arms or legs are affected keep them elevated.

### **⇒ NOTE:**

If medical help will not be available within an hour and the victim is conscious and not vomiting, give him a weak solution of salt and soda: 1 level teaspoonful of salt and 1/2 level teaspoonful of baking soda to each quart of water (neither hot or cold). Allow victim to sip slowly about 4 ounces (a half of glass) over a period of 15 minutes. Discontinue fluid if vomiting occurs. (Do not give alcohol.)

2. Less severe burns - (1st & 2nd degree)
  - a. Apply cool (not ice cold) compresses using the cleanest available cloth article.
  - b. Do not break blisters, remove tissue, remove adhered particles of clothing, or apply salve or ointment.
  - c. Apply clean dry dressing if necessary.
  - d. Treat victim for shock as required.
  - e. Arrange transportation to a hospital as quickly as possible.
  - f. If arms or legs are affected keep them elevated.

### REFERENCE:

ILLINOIS HEART ASSOCIATION  
AMERICAN RED CROSS STANDARD FIRST AID AND PERSONAL SAFETY  
MANUAL (SECOND EDITION)



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# Section 1

## Introduction

# 1

---

### 1.1 Introduction

---

The software application has been designed to be used by Maintenance Engineers, Consulting Engineers, Field Service Engineers and other technical personnel that are familiar with the transmitter and its operation.

This manual serves two purposes:

1. It provides detailed instructions for installing the Z Monitoring software on to a target computer.
2. It provides operational information to the end user of the Z Monitoring software.

This application is designed to be used with a PC that is directly connected to the Platinum Z transmitter (no modem). Programs like pcAnywhere and Virtual Network Computing (VNC) can be used as a remote display system. While the PC can be connected for remote display with these programs, any support of the modem connection or remote program is outside the realm of this Harris product.

### 1.2 What is included on the disk?

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- A Windows™ setup program (Setup.exe) to install the Z Monitoring software.
- This software manual in pdf form.
- The Acrobat Reader Setup program.

### 1.3 Checking the Transmitter Firmware Compatibility

---

Using the Z Monitoring software requires that the Z Transmitter contains a compatible version of firmware in it.

Compatibility can be determined by verifying the Z Transmitter Master Controller firmware is a certain revision or later. As examples; revision B is later than revision A and revisions with double letters are later than single letters, revision AA is later than revision Z. A, B, C, D, ...X, Y, Z, AA, AB, AC...

The following list shows the model of transmitter and it's minimum Firmware revision level acceptable:

**Table 1-1 Minimum Firmware revisions**

<b>Z10</b>	AA
<b>Z7.5</b>	AA
<b>Z5</b>	AA
<b>Z3.5</b>	AA
<b>Z2</b>	AA
<b>Z16HD</b>	C
<b>Z12HD</b>	C
<b>Z8HD</b>	B
<b>Z6HD</b>	B
<b>Z4HD</b>	B
<b>Z16HD+</b>	A
<b>Z12HD+</b>	A
<b>Z8HD+</b>	A
<b>Z6HD+</b>	A
<b>Z4HD+</b>	A

**⇒ NOTE:**

To find your software revision for the transmitter, go to the Platinum Z Transmitter diagnostic display and locate the Configuration screen; [HOME, MORE, SOFTWARE REV]. Observe the firmware revision for the Master Controller. If your Transmitter does not show a firmware revision, it is one of the early production ones. If your firmware is not compatible, you will have to order and install the firmware upgrade before Xtraware will work on your transmitter.

## 1.4 Target PC System requirements

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The following lists the operating Systems and their minimum requirements that are known to be compatible with the Z Monitoring Software;

**Table 1-2 Minimum System requirements**

---

<b>Windows XP Professional</b>	233 MHz Pentium or compatible CPU	128 MB RAM
<b>Windows 2000 Professional</b>	233 Mhz Pentium or compatible CPU	64 MB RAM
<b>Windows NT 4.0 (Service pack 3/build 1381 or above)</b>	233 MHz Pentium or compatible CPU	32 MB RAM
<b>Windows ME</b>	233 MHz Pentium or compatible CPU	32 MB RAM
<b>Windows 98</b>	233 MHz Pentium or compatible CPU	32 MB RAM
<b>Windows 95 (version B/build 708 or above)</b>	233 MHz Pentium or compatible CPU	32 MB RAM

Other components required:

- a. CD-ROM drive
- b. 600 x 800 x 16 bit color VGA video card
- c. Serial port with 16550 compatible UART
- d. 50 MB available hard disk space

### 1.4.0.1 Accessing the Electronic copy of this Guide

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An electronic copy of this User Guide is included on the CD shipped with the product. The guide is in Adobe Acrobat Portable Document Format (PDF). This file can be viewed or printed using Adobe Acrobat Reader, which is also included. The electronic guide can be found in the following folder on the CD: \ **Instruction Manual**. To open the electronic guide, follow this path and click on the file labeled; **User Guide.pdf**.

You can download the latest version on Adobe Acrobat Reader at <http://www.adobe.com/products/acrobat/readstep.html>.

When you read this guide using Acrobat Reader, hyperlinks in the Index, Table of Contents and cross reference files become active allowing you to easily navigate through the document.



# Section 2

## Installation

# 2

---

### 2.1 Introduction

---

The information in this section is intended to be used as a guide for installing the Z Monitoring software on to a target PC supplied by the user for monitoring the transmitter.

The Software application can be used to connect to the serial port of various Platinum Z transmitters. Refer to "Checking the Transmitter Firmware Revisions for Compatibility" in the Introduction section of this manual for a complete list of Models that this program can be used with.

### 2.2 Hardware connections

---

To connect your computer to your Z series transmitter, follow the cabling recommendations below.

#### 2.2.1 Cables required

---

It is preferred that you build your own cable for the Xtraware Z Monitor, follow the table below. The conductors listed are the only connections needed.

It may be possible to use a standard external modem cable with a 25 pin D on one end and a 9 pin D on the other. Use a female-to-female adapter at the Z controller.

**Table 2-1 Z series transmitter to PC interface cable**

<b>25 pin at Z end female</b>	<b>Cable</b>	<b>9 pin at computer end female</b>
pin 2, Mstr RX	white	pin 3, PC TX
pin 3, Mstr TX	black	pin 2, PC RX
pin 7, Ground	shield	pin 5, PC ground

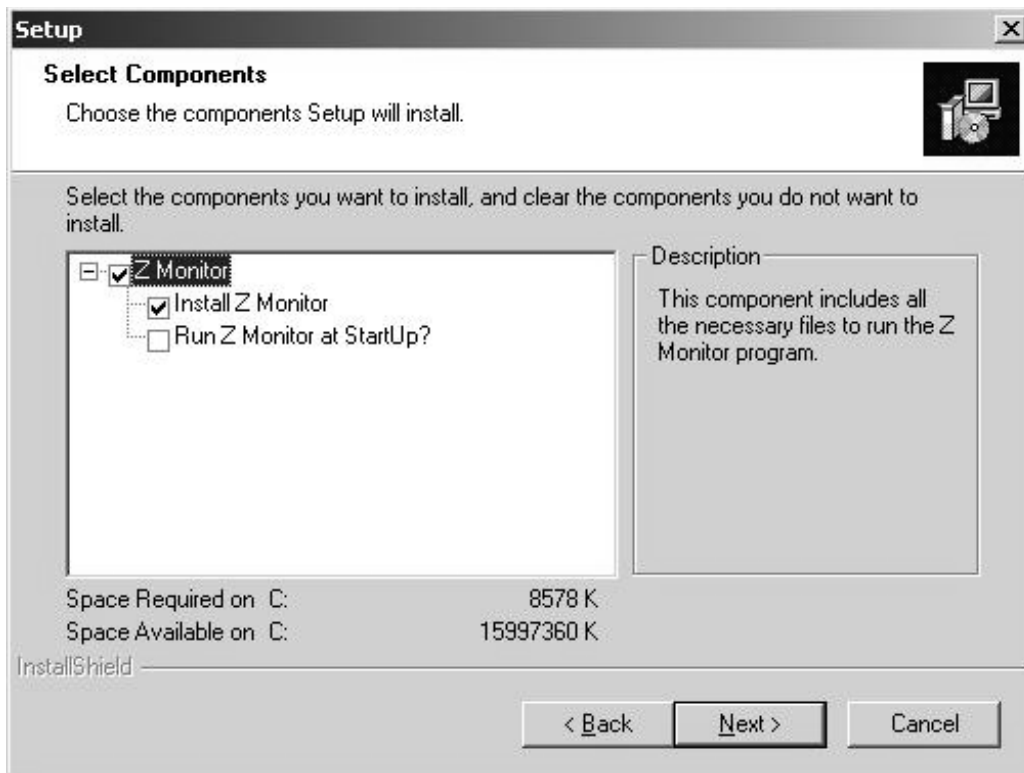
### 2.2.2 Master Controller Dipswitch settings

The Master Controller dipswitch S1-1 through S1-4 set the RS-232 ID. To utilize the Z monitoring application the RS-232 ID must be set to "0" (all four switches set to the OFF position). All Master Controllers are typically shipped from the factory with an ID of "0".

## 2.3 Installing the Z Monitoring Software

The software is installed by simply inserting the CDROM into the target computer. If the Auto run function is active, the Install shield will automatically start the loading process. If not, the setup program, "Setup.exe" is located in the root directory of the CDROM.

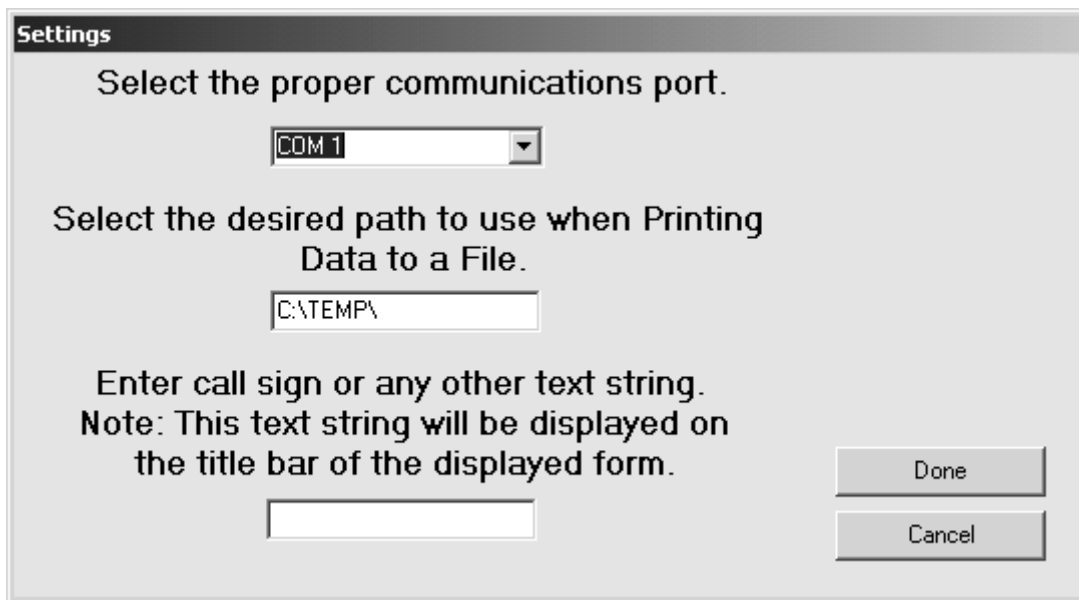
If you want the program to automatically run the Z monitoring software upon startup, select the Run Xtraware at Startup feature in the setup window.



## 2.4 Starting the Z Monitor Application

After the program has been loaded on to the target PC, start the program by double clicking the icon on the desktop, or start it from the start menu. The first time it's started, you will be asked to configure the communications port, path and enter the station's call letters or other text.

Select the communications port to be used, the path (followed by a \ ) and enter the call letters or other text. Select DONE. This screen will not appear after proper installation and shut down.



## 2.5 Software removal

---

Remove the software by using the add/Remove Programs function in the Windows Control Panel. Or by inserting the original program CD and it will prompt you to select one of the following; modify, repair or remove. Select remove properly take it off the computer.

# Section 3

## Operation

# 3

### 3.1 Operation, Controls and Indicators

This section contains information on the basic operation and indicators of the program.

The major purpose of this software is to give the user a quick comprehensive glance at many of the most important transmitter operating parameters.

This software application contains the following key features:

Many key parameters and status can be displayed and continuously updated on one form or window.

Printing of the form to the Windows System printer.

Printing of the display data to a text file.

The printing of the form or data can be set up to automatically print on an interval ranging from 1 minute to 1 week.

Key parameters are displayed on panels that change color for quick recognition of an atypical parameter.

**⇒ NOTE:**

Due to the number of different models/forms this manual covers, some of the screens pictured here may vary from the actual displays you may see depending on Transmitter application. However, the basic operation will be the same.

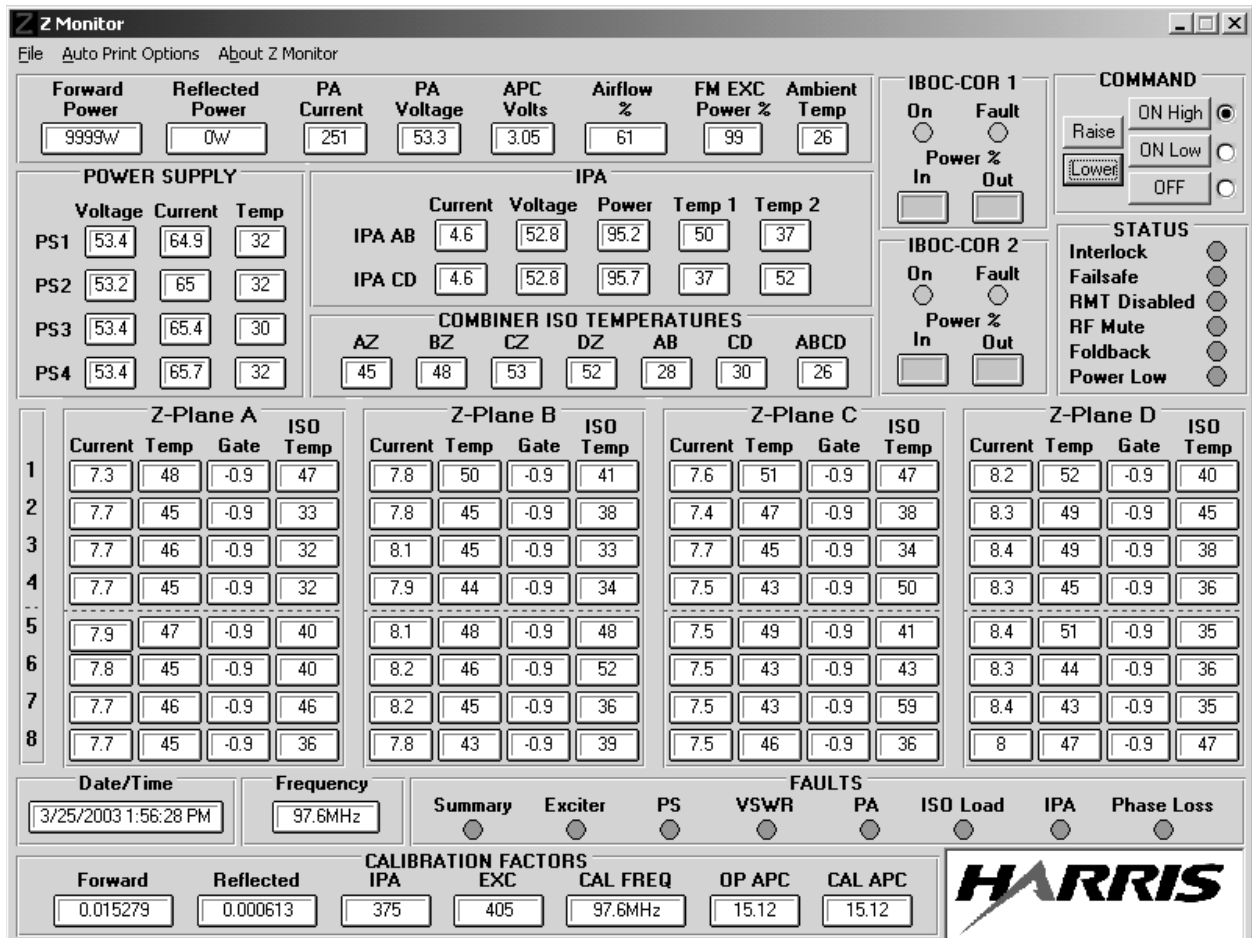


Figure 3-1 Platinum Z-10 form

### 3.1.1 Push Button Controls

All of the following control/command buttons mimic the Transmitter Front Panel controls, please refer to the appropriate Technical manual for more information about their functions.

**⇒ NOTE:**

The Transmitter Remote Status must be enabled for any of these controls to function;

- ON High
- ON Low
- OFF
- Raise

- Lower

Pressing the raise or lower button will affect the transmitter power output. These button duplicate the action of the Transmitter front panel raise/lower buttons (provided that the remote control is not disabled).

### 3.1.2 Color coding

---

For general monitoring purposes;

- GREEN = Okay
- Yellow = Warning
- Red = Fault
- Grey = Data not available, outdated or parameter does not apply.

#### ⇒ NOTE:

Readings shown on the screen examples in this manual are not to be used as correct values for operation of troubleshooting. Please refer to the Factory Test Data sheet for nominal values for your transmitter. A copy of the Factory Test Data sheet can be obtained from Harris Technical Support.

### 3.1.3 Status Indicators

---

All status indicators are generally color coded as follows;

Green = typical for normal operation

Red = not typical.

**Table 3-1 Status Indicators**

Status	Green	Red
Interlock	closed	open
Fail-safe	closed	open
RMT (remote) Disable	enabled	disabled
RF Mute	Not muted	muted
Foldback	No foldback	foldback active
Power low	RF Power OK	RF Power Low

### 3.1.4 Fault Indicators

---

All the Faults indicators are color coded as follows;

Green = Fault inactive (typical for normal operation.

Red = Fault active.

### 3.1.5 IBOC Corrector Data/Parameters

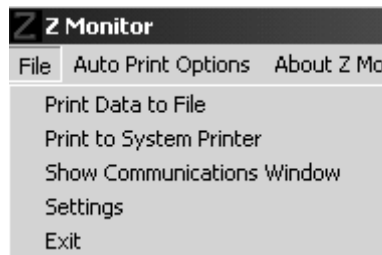
---

The IBOC Corrector Data/ Parameters will be "greyed" out if your transmitter does not contain an IBOC corrector.

### 3.1.6 Printing

---

Printing entails sending data to a printer for a paper copy of the form or saving data as a text file. These commands can be manually done for a one-time capture, or can be set up to occur at user defined intervals.



#### 3.1.6.1 Print data to file.

---

This as a data capture to a file with a date/time stamp as when it was saved. The path, or file location is selected in the Communication Port configuration when the application was first launched. The path can also be changed, select; File, settings. Print data to file saves it in a raw text form with no graphics to the file path specified.

#### 3.1.6.2 Print to System Printer

---

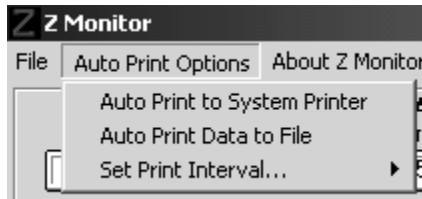
This selection will print a paper copy of the form shown on the PC, with graphics. It prints to your Windows System default printer.



### 3.1.7 Auto Print options

---

Auto printing will save the data to file or print a paper copy as described above at set intervals.



#### 3.1.7.1 Auto print to system printer

---

Place a check mark in the box in front of this entry for paper copies as the set intervals.

#### 3.1.7.2 Auto print data to file

---

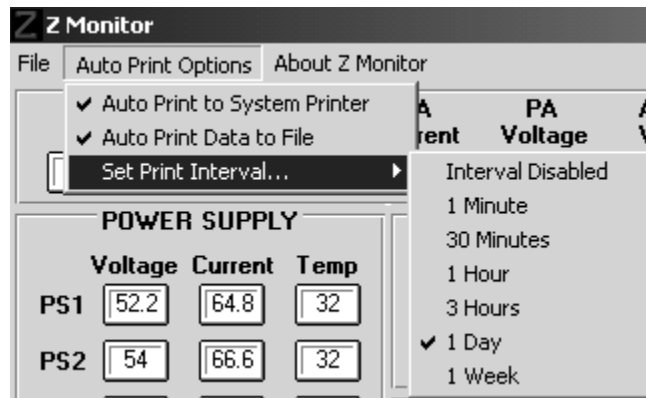
Check this selection to save data to file at the selected intervals.

#### 3.1.7.3 Set Print Interval

---

Check the interval choices listed to enable the Print Interval. Check disable if the Print Interval is not desired.

The interval is not based on the PC real time clock. It is based on the program's timers and thus the exact time the save/print occurs may vary slightly.



# Section 4

## Troubleshooting

# 4

### 4.1 Troubleshooting the software

---

This application is designed to be used with a PC that is directly connected to the Platinum Z transmitter (no modem). Programs like pcAnywhere and Virtual Network Computing (VNC) can be used as a remote display system. While the PC can be connected for remote display with these programs, any support of the modem connection or remote program is outside the realm of this Harris product.

#### 4.1.1 IBOC Corrector Data/Parameters

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The IBOC Corrector Data/ Parameters will be "greyed" out if your transmitter does not contain an IBOC corrector.

#### 4.1.2 Troubleshooting

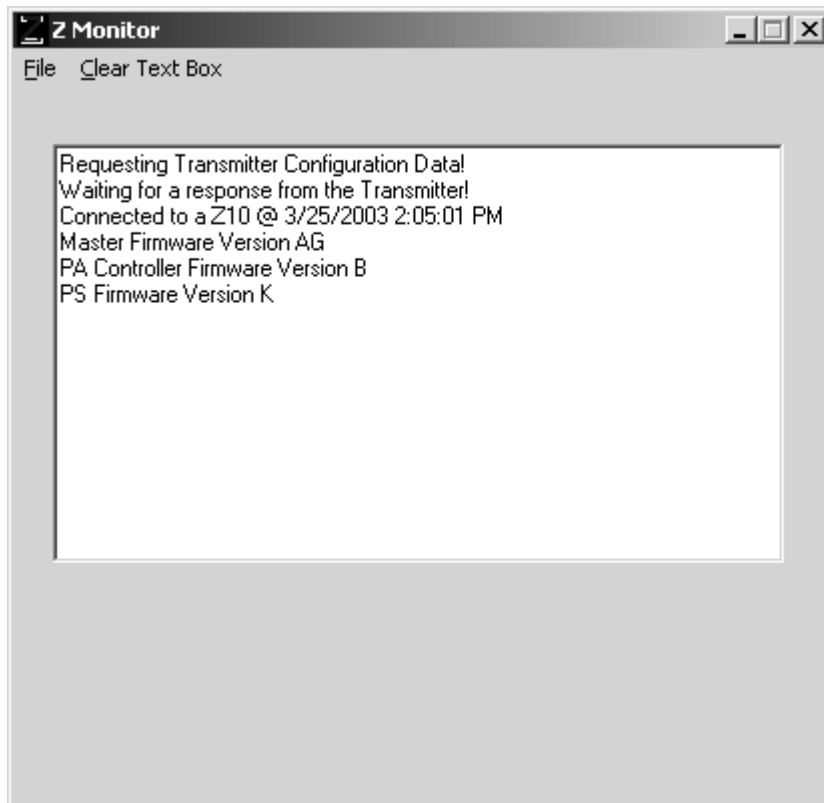
---

When the PC is not communicating with the transmitter, try a different Serial cable.

##### 4.1.2.1 Communications window

---

There is a communications window located at; File, Show Communications window. This shows collects the communications faults in a list. To clear the text box will remove excessive faults that may be stored in the text box.



When a communication request from the program has failed, the cell in the form which shows the readings will turn dark gray however, the old data will still show. This indicates the data is not current and was not refreshed. This text box will indicate where the communication fault came from.

#### 4.1.2.2 Run time error 76, path not found

When the print data to file path in the Communication Port Configuration is not a valid path, this run time error will pop up. Verify the print path ends with a "\" symbol. (File, settings).

#### 4.1.2.3 Run time error 482, printer error

This error pop up indicates the Windows System printer is not found. Check the Windows System Printer settings.

#### 4.1.2.4 Run time error 8002, invalid port number

This error will show when the selected Communications port is not correct, the PC port is being used by some other application or is not available.

#### 4.1.2.5 Waiting for a response from the transmitter

The program is requesting data from the transmitter and is not getting a response. Check the cable to verify it is attached. If it is a new cable verify the pin out is as described in section II. Verify the transmitter is powered and ON. Verify the Master Controller dip switches are configured as described in Section II. Make sure the data cable is not excessively long or unshielded.

