



# **Systems Alliance**

## **VPP-8**

**VXI Module/Mainframe to Receiver Interconnection**

**June 1995  
Revision 2.0**



# Systems Alliance

## VPP-8 Revision History

This section is an overview of the revision history of the VPP-8 specification

### **Revision 1.0 Original**

### **Revision 1.1 October 31, 1994**

This revision includes adding tolerances to Figure B, page 11

### **Revision 2.0 June 2, 1995**

This revision includes the addition of Section 4.5 and Figure D, as well as typographical corrections to comply with other VPP documentation.

## NOTICE

The *VXI Module/Mainframe to Receiver Interconnection* Specification (VPP-8) is authored by the *VXIplug&play* Systems Alliance member companies. For a vendor membership roster list, please contact The *VXIplug&play* Systems Alliance at 6504 Bridge Point Parkway, Austin, Texas, 78730.

For feedback or more information on this specification you may contact the *VXIplug&play* Systems Alliance at 6504 Bride Point Parkway, Austin, Texas, 78730.

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## Contents

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### Section 1: Introduction to the VXIplug&play Systems Alliance

1.1 Formation	3
1.2 Objectives and charter	3
1.3 Specifications	3

### Section 2: Overview of VXI Module/Mainframe to Receiver Interconnection Specification

2.1 Introduction	4
2.2 Objectives of the specification	4
2.3 Audience to the specification	4
2.4 Scope and Organization of the specification	4
2.5 Application of this specification	5
2.6 References	5
2.7 Conventions	5
2.8 Communications	6

### Section 3: Introduction to VXI Module/Mainframe to Receiver Interconnection

3.1 Introduction	7
3.2 The VXI Standard	7
3.3 VXI Module Integration	7
3.4 Need for Further Standards	7

### Section 4: Requirements for VXI Module/Mainframe to Receiver Interconnection

4.1 Introduction	8
4.2 VXI Module Front Panel Design	8
Figure A: VXI Module Specification Sheet	9
4.3 VXI mainframe design	10
Figure B : Mainframe Mounting Flange Layout	11
Figure C: Mainframe VXI Module Recess	12
4.4 Receiver Interconnection Design	13
4.5 Receiver Module Specification	13
Figure D: Receiver Module Configuration	14

Graphical Glossary of Terms	15
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## Section 1

# Introduction to the VXiplug&play Systems Alliance

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## 1.1 Formation

The VXiplug&play Systems Alliance was formed on September 22, 1993. The founding members of the alliance are leading vendors of VXI technology and products. The VXiplug&play Systems Alliance is an open organization: its membership is open to both vendors and users of VXI technology. Since its formation, many additional vendors and users have joined the alliance and now participate in its activities.

## 1.2 Objectives and Charter

The objective of the VXiplug&play Systems Alliance is to increase ease of use for end users of VXI technology. The alliance members share a common commitment to end user success with open, multi-vendor VXI systems. The alliance members also share a common vision for multi-vendor system architecture, including both hardware and system-level software. This common vision enables the members to work together to define and implement standards, guidelines, and practices for system-level issues beyond the scope of the VXIbus specifications.

The intention of the member companies is to accomplish major improvements in ease of use by endorsing and implementing common standards and practices in both hardware and software beyond the scope of the VXIbus specifications. Both formal and de facto standards are used to define complete system frameworks. These standard frameworks give end users true "plug and play" interoperability at both the hardware and system software level.

## 1.3 Specifications

The VXiplug&play Systems Alliance produces a variety of specifications that address system-level issues beyond the scope of the baseline VXIbus Specifications produced by the VXi Consortium. To organize and keep track of these various specifications, the alliance assigns both a name and a number to each specification. The number designation for all specifications is VPP-*X*, where *X* is a unique number assigned to each specification. This specification, for example, is entitled *VXI Module/Mainframe to Receiver Interconnection*, and is assigned the number VPP-8. Other specifications may be obtained through the VXiplug&play Systems Alliance.

## Section 2

# Overview of VXI Module/Mainframe to Receiver Interconnection

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## 2.1 Introduction

This section introduces the *VXI Module/Mainframe to Receiver Interconnection Specification*. It describes the intended audience and usage of the specification. It also gives references to other documentation which, although external to this specification, are critical to its understanding.

## 2.2 Objectives of the Specification

The goal of the *VXI Module/Mainframe to Receiver Interconnection Specification* is to ensure that a *VXIplug&play* system may be utilized without concern for compatibility or interoperability of selected system components. This specification defines the required mounting structure to ensure that any *VXIplug&play* compatible interface will mount to a *VXIplug&play* compatible mainframe. This specification also mandates the minimum documentation required by vendors of VXI Modules.

## 2.3 Audience for this Specification

The primary audience for the *VXI Module/Mainframe to Receiver Interconnection specification* consists of hardware integrators, or end users who want to implement a system compliant with this specification. The intent of this specification is to ensure the end user or UUT developer success without prior knowledge of this specification.

## 2.4 Scope and Organization of the Specification

This specification is organized in sections. Each section discusses a particular aspect of the *VXIplug&play* Systems Alliance standard for *VXI Module/Mainframe to Receiver Interconnection* requirements.

Section 1 explains the *VXIplug&play* Systems Alliance, its objectives, its charter, and its development of standard documents.

Section 2 summarizes this specification and discusses its objectives, audience, scope and organization, application, references, and conventions.

Section 3 gives an introduction to the concept of *VXI Module/Mainframe to Receiver Interconnection*, and includes the definition of the *VXIbus* standard.

Section 4 defines the requirements when designing the *VXI Module/Mainframe to ReceiveInterconnection* Device.

## 2.5 Application of this Specification

The *VXI Module/Mainframe to Receiver Interconnection Specification* is designed to ensure the system integrator has an interconnect solution between the VXI instrumentation and the UUT (unit under test) receiver interface.

## 2.6 References

Several other *VXIplug&play* System Alliance documents and specifications are available. Those related to this specification and other related documents include:

VPP-1	VXI <i>plug&amp;play</i> Charter Document
VXI-1	VMEbus Extensions for Implementation (IEEE 1155)

## 2.7 Conventions

The following headings appear on paragraphs throughout this specification. These headings give special meaning to the paragraphs.

*Rules* must be followed to ensure compatibility with the system framework. A rule is characterized by the words **SHALL** or **SHALL NOT** in bold upper case characters. These words are not used in this manner for any purpose other than stating rules.

*Recommendations* consist of advice to implementors which will affect the usability of the final device. They are included in this standard to draw attention to particular characteristics which the authors believe to be important to end user success.

*Permissions* are included to *authorize* specific implementation or uses of system components. A permission is characterized by the use of the word **MAY** in bold upper case characters. These permissions are granted to ensure specific *VXI Module/Mainframe to Receiver Interconnection* components are well defined and can be tested for compatibility and interoperability.

*A Note on the text of the specification:* Any text which appears without heading should be considered as description of the standard and how the architecture was intended to operate. The purpose of this text is to give the reader a deeper understanding of the intentions of the specification including the underlying model and specific required features. As such, the implementor of this standard should take great care to ensure that a particular implementation does not conflict with the text of the standard.

## 2.8

### **Communications:**

The VXi*plug&play* Systems Alliance wants to receive your comments on this specification. Write to the VXi*plug&play* Systems Alliance, 6504 Bridge Point Parkway, Austin, Texas, 78730.



## Section 3

### Introduction : VXI Module/Mainframe to Receiver Interconnection

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#### 3.1 Introduction

This section gives a detailed description of the *VXI Module/Mainframe to Receiver Interconnection Specification*. It describes the need for a standard interconnection and its relationship to other *VXIplug&play* components.

#### 3.2 The VXI Standard

The VXI standard supports the integration of instrumentation from many vendors into a single mainframe. A primary goal of the VXI standard is interoperability between VXI Modules. VXI Instrumentation must meet well defined interface specifications to ensure system compatibility.

VXI provides many mechanisms that support instrument interoperability. It provides a standard backplane electrical interface, standard mechanical packaging, standard system management and communication methods, and limits on local electromagnetic radiation and susceptibility. All of these requirements guarantee hardware compatibility and interoperability.

#### 3.3 VXI Module Integration

In order to provide an integrated adapter kit to interconnect the receiver to the VXI module, pertinent information must be available to the integrator prior to the delivery of finished goods. To eliminate the need for excessive research, VXI Module vendors and receiver interconnect vendors shall supply the information in a specific format.

#### 3.4 Need for Further Standards

Although the VXI standard ensured hardware interoperability, it did not address the implementation of cables or adapters to VXI modules. Because of the broad range of mainframe packaging designs, moving an integrated adapter kit between mainframes and installing a receiver interconnecting device, can pose a challenge. When two system components do not work together, identifying and resolving the problem can be tedious and difficult for the user.

## Section 4

### Requirements: VXI Module/Mainframe to Receiver Interconnection

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#### 4.1 Introduction

This section describes the requirements for developing a *VXIplug&play* compatible method for mounting a receiver interconnecting system to a VXI mainframe and VXI Modules. Where appropriate it references other documents and standards which specifically define these components. Dimensions are in mm (inch).

#### 4.2 VXI Module Front Panel Design

A VXI Module may be integrated (wired) and available in an adapter kit form. Because this kit must be compatible with any *VXIplug&play* compatible mainframe, the following rules apply:

##### **RULE 4.1**

The VXI Module front panel thickness **SHALL** be 2.5 (.098) in accordance with VXI 1.4 specification. Shims **MAY** be supplied to obtain conformity.

##### **RULE 4.2**

VXI Module manufacturer **SHALL** provide (as a minimum) information on each VXI module as detailed in Figure A of this document. This information **SHALL** be available at time of order.

Figure A. VXI Module Front Panel Configuration



VXI mainframe packaging design may vary between vendors; however, the following rules apply for mounting a receiver interconnecting device:

**Rule 4.3**

The mainframe **SHALL** be designed in accordance with VXI 1.4 specification.

**Rule 4.4**

Each mainframe **SHALL** be supplied with a pair of VXI *plug&play* compatible flanges for mounting receiver interconnecting devices.

**Rule 4.5**

Mounting surface of flanges **SHALL** be designed in accordance with specifications detailed in Figure B of this document.

**NOTE:** The datum is represented by the slot zero VXI module mounting hole as taken from VXI 1.4 specification, Figure B.29 (12.7 (.500) ) from the intermodule separation plane).

When utilizing an integrated adapter kit, a specific recess *must* be provided on the mainframe:

**Rule 4.6**

Front panel recess **SHALL** be  $100.58 \pm 2.25$  (3.960  $\pm$  .01) from the outside surface of the mainframe to the mounting surface of the VXI module front panel, as detailed in Figure C of this document. The front panel recess **MAY** be obtained by mounting the entire mainframe on recessed flanges.

When an integrated adapter kit is *not* used, and the interconnection is direct cabling, the recess **MAY** be adjusted by using extension flanges, or slotted flanges.

**NOTE:** Depending on receiver interconnecting device, it may be necessary to provide extenders for mainframe functions, such as switches, indicators, or displays.

**Rule 4.7**

Any VXI *plug&play* compatible mainframe **SHALL** be noted as such, either by screening or affixing a label.

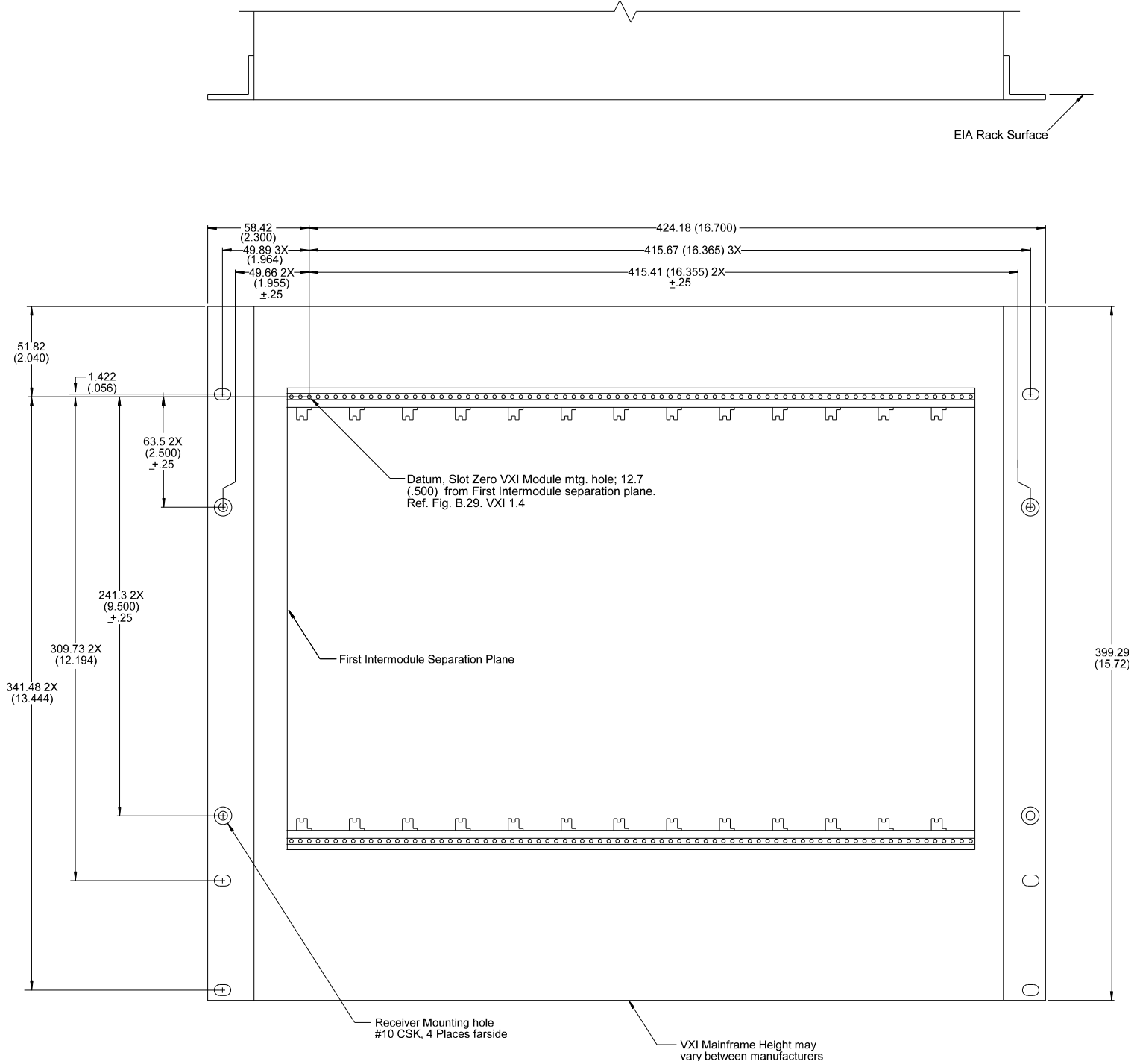


Figure B. Mainframe Mounting Flange Layout

Note: This drawing depicts minimal tolerances, alignment device may be necessary

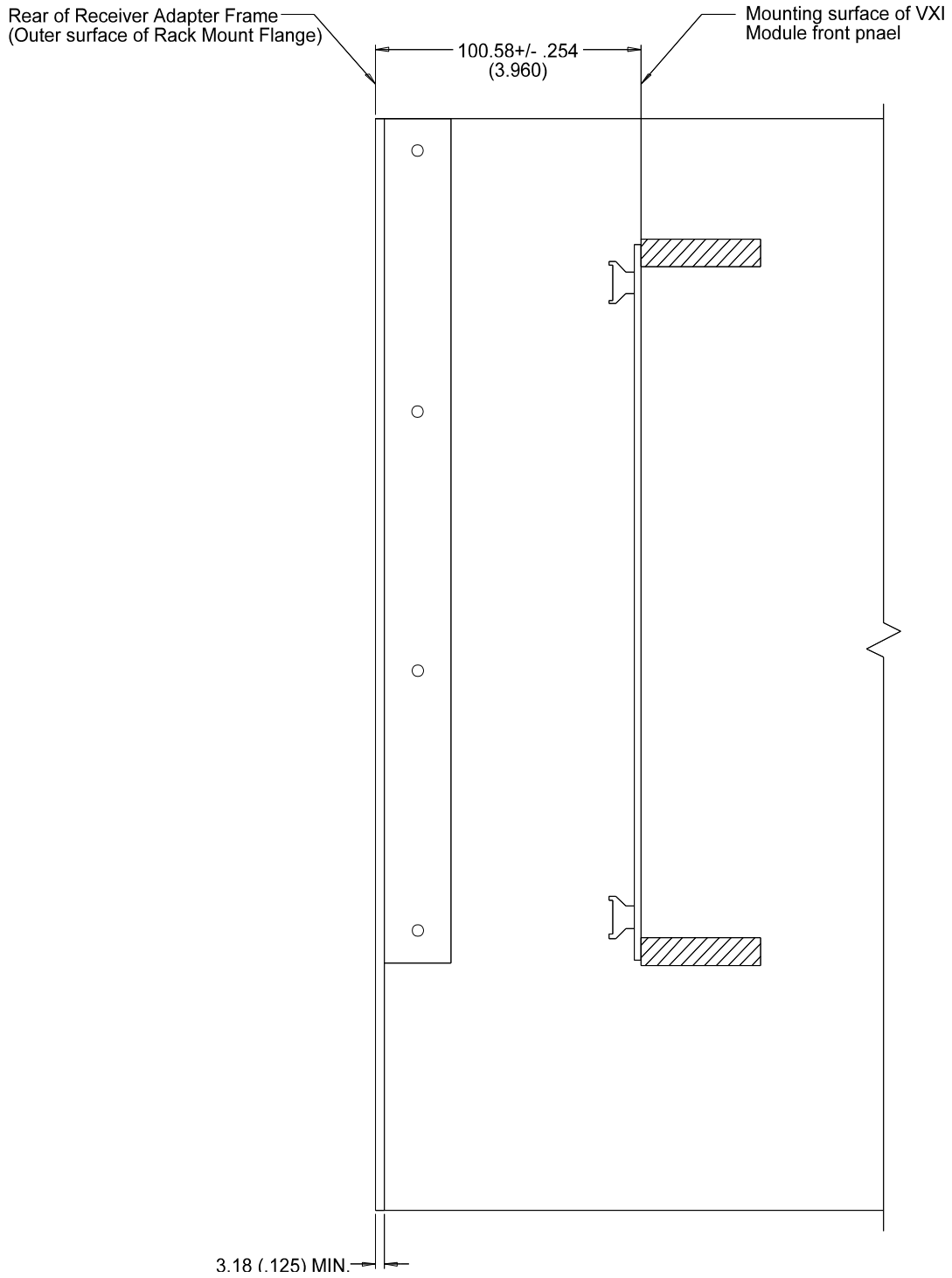


Figure C. Mainframe VXI Module Recess

## 4.4 Receiver Interconnecting Design

To provide interoperability between systems, the following rules apply for receiver design:

### Rule 4.8

Receiver Interconnecting device **SHALL** be designed to include compatible receiver mounting holes as specified in Figure B of this document.

### Rule 4.9

Receiver mounting holes shall be 10-32 UNF-2B tap.

### Rule 4.10

When using integrated adapter kits, the receiver device **SHALL** be designed with spacer panels to ensure compatibility. Spacer thickness is equivalent to adapter kit width minus front panel recess (100.58 (3.960) ).

### Rule 4.11

Receiver manufacturer **SHALL** provide mounting hardware for installation onto front of *VXIplug&play* compatible flanges on the mainframe.

## 4.5 Receiver Module Specification

VXI Receiver packaging and individual interconnect design will vary between vendors. To aide the user/integrator, the following rules shall apply to the receiver module manufacturer:

### Rule 4.12

Receiver module manufacturer **SHALL** provide (as a minimum) the information required in Figure D of this document. This information **SHALL** be available at time of order.

### Rule 4.13

As a minimum, pin one (1) **SHALL** be clearly marked as such on the receiver module body. Subsequent pins **SHALL** be marked to provide pin numbering configuration.

This information will be used by the integrator to select connectors, contacts, tools, and any other pertinent data needed to interconnect a VXI module or mainframe to a receiver interconnecting device.

Figure D. Receiver Module Configuration

As a minimum, the following information is required of each Receiver module manufacturer:

1. Module Part no. \_\_\_\_\_

2. Manufacturer: \_\_\_\_\_

3. Module Dimensions:

\_\_\_\_\_ High X \_\_\_\_\_ Wide X \_\_\_\_\_ Deep

4. Module Contact Specifications

Contact Type		
# of Contact Pins		
Resistance		
Maximum Voltage		
Maximum Current		
Bandwidth		
Impedance		
Maximum Cable Size		
Life Expectancy		

5. Contact Interconnection Method (as required):

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7. Applicable Tools:

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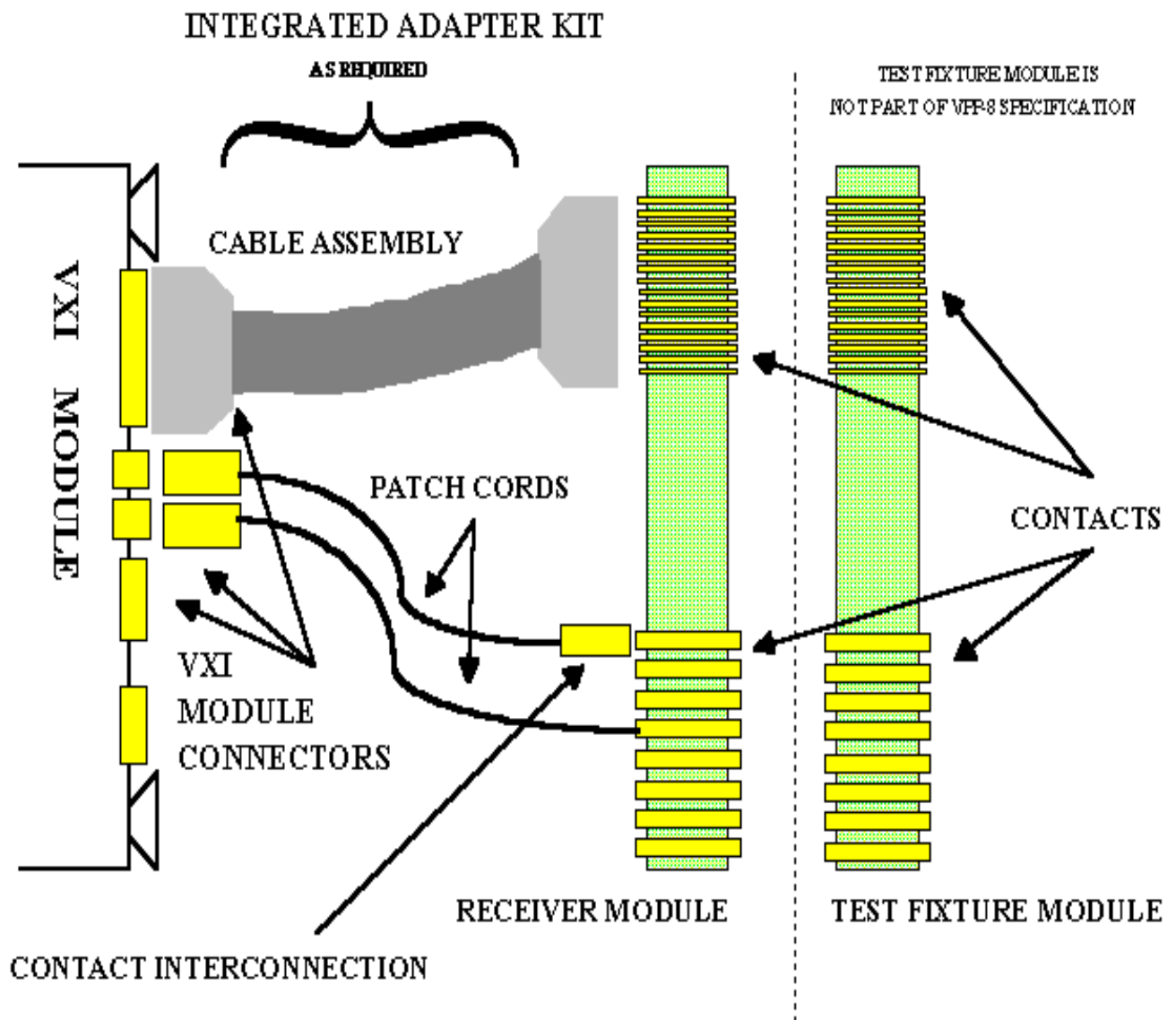
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### GRAPHICAL GLOSSARY OF TERMS



**GENERIC GRAPHICAL REPRESENTATION**