ZHONE

IMACS-200 Software Release 2.0.3
General Availability
Letter of Operational Considerations

Document part number: 830-01761-04

Table of Contents

Overview

The IMACS-200 is the newest member of Zhone's family of Integrated Multiple Access Communications Server (IMACS) products. It complements the IMACS 600, 800, and 900 systems but is optimized for deployment in locations with smaller capacity requirements. The maintenance interface and the functionality of the various ports closely follow the functionality and "look and feel" of the existing IMACS products. Unlike the existing IMACS products, the IMACS-200 is designed to meet IEEE 1613 environmental requirements including temperature range "a". This means it can safely be installed in locations that do not have a temperature controlled environment.

GA Declaration

This document covers the IMACS-200 product release which includes:

- System software at revision 2.0.3
- System Reference Guide (user's manual) at revision 2.0.3. Documentation is delivered in PDF format on a CD.

Zhone Technologies, Inc. has designed and tested this IMACS-200 software release 2.0.3 and declares that it meets the necessary quality standards to be released for General Availability.

Product Versions and Ordering Codes

The tables below lists the IMACS-200 product variants that are available for this product release. The Model Number (ordering part number) is shown in the left hand column and the description is shown in the right column.

IMACS-200 with 48 VDC POWER SUPPLIES	
MODEL NUMBER / ORDER CODE	**DESCRIPTION**
IMACS-200-48VDC	IMACS-200, SINGLE -48 VDC POWER SUPPLY
IMACS-200-48VDC-OHSU	IMACS-200, SINGLE -48 VDC POWER SUPPLY, DUAL C37.94 OPTICAL PORTS
IMACS-200-48VDC-OHSU-OW	IMACS-200, SINGLE -48 VDC POWER SUPPLY, DUAL C37.94 OPTICAL PORTS, OPTICAL WAN
IMACS-200-48VDC-OW	IMACS-200, SINGLE -48 VDC POWER SUPPLY, OPTICAL WAN
IMACS-200-RDNT-48VDC	IMACS-200, REDUNDANT -48 VDC POWER SUPPLIES
IMACS-200-RDNT-48VDC-OHSU	IMACS-200, REDUNDANT -48 VDC POWER SUPPLIES, DUAL C37.94 OPTICAL PORTS
IMACS-200-RDNT-48VDC-OHSU-OW	IMACS-200, REDUNDANT -48 VDC POWER SUPPLIES, DUAL C37.94 OPTICAL PORTS, OPTICAL WAN
IMACS-200-RDNT-48VDC-OW	IMACS-200, REDUNDANT -48 VDC POWER SUPPLIES, OPTICAL WAN

IMACS-200 with 120/220 VAC POWER SUPPLIES	
MODEL NUMBER / ORDER CODE	**DESCRIPTION**
IMACS-200-AC	IMACS-200, SINGLE 120/220 VAC POWER SUPPLY
IMACS-200-AC-OHSU	IMACS-200, SINGLE 120/220 VAC POWER SUPPLY, DUAL C37.94 OPTICAL PORTS
IMACS-200-AC-OHSU-OW	IMACS-200, SINGLE 120/220 VAC POWER SUPPLY, DUAL C37.94 OPTICAL PORTS, OPTICAL WAN
IMACS-200-AC-OW	IMACS-200, SINGLE 120/220 VAC POWER SUPPLY, OPTICAL WAN
IMACS-200-RDNT-AC	IMACS-200, REDUNDANT 120/220 VAC POWER SUPPLIES
IMACS-200-RDNT-AC-OHSU	IMACS-200, REDUNDANT 120/220 VAC POWER SUPPLIES, DUAL C37.94 OPTICAL PORTS
IMACS-200-RDNT-AC-OHSU-OW	IMACS-200, REDUNDANT 120/220 VAC POWER SUPPLIES, DUAL C37.94 OPTICAL PORTS, OPTICAL WAN
IMACS-200-RDNT-AC-OW	IMACS-200, REDUNDANT 120/220 VAC POWER SUPPLIES, OPTICAL WAN

IMACS-200 with 125 VDC POWER SUPPLIES	
MODEL NUMBER / ORDER CODE	**DESCRIPTION**
IMACS-200-125VDC	IMACS-200, SINGLE 125 VDC POWER SUPPLY
IMACS-200-125VDC-OHSU	IMACS-200, SINGLE 125 VDC POWER SUPPLY, DUAL C37.94 OPTICAL PORTS
IMACS-200-125VDC-OHSU-OW	IMACS-200, SINGLE 125 VDC POWER SUPPLY, DUAL C37.94 OPTICAL PORTS, OPTICAL WAN
IMACS-200-125VDC-OW	IMACS-200, SINGLE 125 VDC POWER SUPPLY, OPTICAL WAN
IMACS-200-RDNT-125VDC	IMACS-200, REDUNDANT 125 VDC POWER SUPPLIES
IMACS-200-RDNT-125VDC-OHSU	IMACS-200, REDUNDANT 125 VDC POWER SUPPLIES, DUAL C37.94 OPTICAL PORTS
IMACS-200-RDNT-125VDC-OHSU-OW	IMACS-200, REDUNDANT 125 VDC POWER SUPPLIES, DUAL C37.94 OPTICAL PORTS, OPTICAL WAN
IMACS-200-RDNT-125VDC-OW	IMACS-200, REDUNDANT 125 VDC POWER SUPPLIES, OPTICAL WAN

Release Content History

Release 2.0.3 Feature Content Introduction

No new features have been introduced in the 2.0.3 release.

Release 2.0.3 Issue Resolution

The following issues are resolved in release 2.0.3.

FXS and E&M Port functionality

An issue was resolved whereby the FXS and / or E&M ports could be disabled until the next reset. This was determined to be a power-up sequencing issue.

WAN Port functionality

An issue was resolved whereby WAN ports may be disabled upon power-up of the system.

Consideration #6 – SRU port 1 using sync interface

Field units upgrading to 2.0.3 from 2.0.0 will not be able to use the sync interface on port 1. This is due to a conflict existing on the SRU port itself. Customers wishing to use the sync interface should use one of the other four ports. Factory units programmed using 2.0.3 will not have this issue. Units built after July 30, 2008 will not experience this trouble.

Release 2.0.2 Feature Content and Issue Resolution

SRU BERT

The IMACS-200 now supports SRU BERT.

Release 2.0.1 Feature Content and Issue Introduction

The following features are introduced in release 2.0.1.

SRU per-port Provisioning

The IMACS-200 now supports SRU provisioning on individual ports, as opposed to restrictions on framing format in previous releases.

WAN Facility Protection Support

An option has been added to provide for WAN protection switching on facility failure.

IP Router gateway resolution

An issue wherein setting of the gateway prior to setting the IP Router could cause operational issues is resolved in this release.

Frame Relay after WAN BERT

An issue where a frame relay circuit did not re-establish after the conclusion of WAN BERT has been resolved.

Enable 1 Khz tone for OWAN

For testing purposes, the 1 Khz tone is now available.

Add OWAN alarms to the Alarm Filter Screen

The OWAN alarms now appear on the Alarm Filter Screen

Ensure "OPT LOS" appears when necessary

The OPT LOS alarm was not displayed on a **rdnt** to **stdby** to **rdnt** transition.

OWAN main screen states incorrect

Resolve an issue where the OWAN main screen states were inconsistent when returning from the Ports screen.

Alarm Filter Changes incorrect after a Zip

When a unit was zipped in the field, the Alarm Filters did not return properly.

User Interface hangs on deletion of an IP Route

When deleting an IP route that was not established, the UI would hang.

Ignore EER conditioning.

We now treat EER conditioning as a warning, since the condition does not clear until the errors cease.

SRU timeslot provisioning

Resolve an issue where multiple SRU ports on different WAN ports would cause traffic loss. When using the same channel on multiple WANs (example: using timeslot 22 on both W2 and W3) to carry SRU traffic, adding the second WAN on the same timeslot would cause the first to fail.

Resolve data in response to ARP request

The IMACS-200 responded to ARP requests with a null address (0.0.0.0.0.0) instead of a broadcast address (F.F.F.F.F.F) in the body of the ARP reply.

Changing the Management IP address does not work

Changing the Management IP while it is active now works.

Injecting the RX ABCD timeslot was off by one timeslot

When using the voice test and using the inject ABCD function, the timeslot used was one off from the one chosen.

FXS ringing does not exit correctly from BERT testing

When sending ringing to an FXS port via ABCD signaling during the BERT test, exiting the test should have returned the signaling to LCFO.

Signaling conversion not restarted on a port OOS / IS cycle

When using signaling conversion, the conversion was not properly restarted after a port out of service to in-service transition.

BERT test traps when Gateway is provisioned

The BERT test would trap if the Gateway was provisioned but not enabled in the Management IP screen. The IP screen was set up as a Host.

Remove option for using 5 or 6 data bits for SRU

The SRU setup screen presented an option to support 5 or 6 data bits in the data stream. This option is not actually available, and has been removed as an option.

Release 2.0.0 Feature Content and Issue Resolution

The following features and issues have been addressed in release 2.0.0.

Optical WAN Support

Added a factory configurable option for an Optical WAN interface (OWAN).

125VDC IMACS-200.

Added a factory configurable option for a either single or redundant 125VDC power supplies.

OnLine Support

The IMACS 200 is now supported in OnLine 1.3.0.

Remote Upgrade Support from Online

This capability is supported in the 1.3.0 version of OnLine.

E&M Type IV and V

E&M signaling types II, IV and V can now be supported on the 4-wire interface ports.

Release 1.0.3 Feature Content and Issue Resolution

The following features and issues have been addressed in release 1.0.3.

E1 WAN Support

The electrical WAN interfaces can now support either T1 or E1 interfaces.

E1 SA4 Bit Support

Supports the SA4 bit option on E1 WAN interfaces.

SNMP Support

Support for SNMP v1 was added in release 1.0.3.

IP Routing

Software support for the 10BaseT Ethernet port was added, to include RFC1490 WAN transport encapsulation, as well as ARP, RIP, and OSPF bridging and routing.

Release 1.0.2 Feature Content and Issue Resolution

The following features and issues have been addressed in release 1.0.2.

Login Log

In previous releases, the ability to maintain a record of user login/logout events was not available. A record of up to twenty (20) such events are now recorded.

Allow spaces in the Node ID.

In previous releases, the user could not use a space in the Node ID field, which is the node name. Allowing the use of a space within the node ID is permitted in this release.

Fast Circuit Restore

With the IMACS platform, the ability to restore a data circuit quickly is supported, once the T1 has cleared its alarm condition. With this release, the IMACS-200 also supports this feature. Use of this does circumvent normal circuit recovery timing. With the introduction of this feature, data services recover in about 200ms, voice services in about 1 second.

DSX/ CSU selection

The IMACS-200 supports the selection of parameters which allow for DSX, as well as CSU interfaces to the T1 termination ports.

Port state updates

Previous releases of the IMACS-200 did not support the reflection of actual port states for the voice or data ports on the main screen (as the IMACS platform does) with "**s**", "**a**", "**l**" or "**t**" characters. In this release, we introduce these characters, which are **s**tandby, **a**ctive, **l**oopback and **t**est.

FXS gain restrictions

In previous releases of the IMACS-200, the maximum gain setting available on the FXS ports was +3.5 dB. New in this release is the ability to change the gain to a maximum setting of +6.5 dB.

Release 1.0.1 Feature Content and Issue Resolution

The following features and issues have been addressed in release 1.0.1.

HSU loop-up does not operate correctly.

In release 1.0.0, if the loop-up sequence is sent to the IMACS-200 from the remote end, the HSU ports will not loop-up as expected. This issue has been resolved in this release.

E&M signaling for type 1 and 2, and corresponding test screens

In release 1.0.0, the initial release of the IMACS-200 platform includes E&M Transmit Only (TO) mode. Support for E&M signaling Type 1 and Type 2 is introduced in this release.

Farstat reporting

In release 1.0.0, when connected to a device that can provide remote Performance Monitoring (PM) data (**farstat**) the IMACS-200 is able to accurately retrieve and display the remote PM data. However, if asked to provide this **farstat** data to a requesting device, the IMACS-200 fails to deliver the appropriate data. Support for Performance Monitoring data is introduced in this release.

Release 1.0.0 Feature Content

Release 1.0.0 was the initial GA release of the IMACS-200 platform

Release Content Summary

SYSTEM FEATURES	REL	NOTES
2U high, 19” rack mountable, 12” deep	1.0.0	
-48 VDC and 120/240 VAC, simplex or redundant powering options	1.0.0	Factory installed power options
Time of day clock with battery back up	1.0.0	
Synchronization • Internal (Stratum 4) • External (any WAN port) • External (either V.35 port)	1.0.0	
RoHS Compliant	2.0.0	
125 VDC, simplex or redundant powering option	2.0.0	Factory installed power option
IEEE 1613 Environmental Certification	Future	Refer to details in “Consideration #1” below

OAM FEATURES & INTERFACES	REL	NOTES
Maintenance Interfaces: • RS-232 craft port • Ethernet craft port • Telnet	1.0.0	
VT-100 menu based UI (similar to IMACS)	1.0.0	
In-service software upgrade	1.0.0	
Optical High Speed Unit (OHSU) loop-up capability	1.0.1	
FARSTAT reporting to IMACS	1.0.1	
Spaces in Node ID	1.0.2	
Main screen updates of circuit states	1.0.2	
Security login logs	1.0.2	
SNMP v1 Support	1.0.3	
OnLine support	2.0.0	Requires Online v1.3.0 or higher
EMS remote upgrade capability	2.0.0	Requires Online v1.3.0 or higher
SNMP V2 remote management	Future	

ACCESS INTERFACES	REL	NOTES
4 ports of 4 Wire TO • Provisionable TLP • Analog and digital loop back • Digital mW tone generation	1.0.0	
E&M Type I & Type II signaling to 4-wire port	1.0.1	
E&M Type IV & Type V signaling to 4-wire port	1.0.3	
E&M Test Screen and Tone Injection	Future	Software upgrade only on existing hardware
4 ports of 2 Wire FXS and / or PLAR • 600 ohm impedance • Loop start • Provisionable TLP • Analog and digital loop back • Digital mW tone generation	1.0.0	
2 ports of V.35 • n x 56 K or n x 64 K • DCE • Int/ext clock • Provisionable CTS delay • DTE and Network loop back • BERT	1.0.0	
5 ports of RS-232 SRU • Speeds: 2.4, 4.8, 19.2, 28.8 and 38.4 kbps • Low delay • support DS0-A or DS0-B framing • Int/ext clock • Provisionable CTS delay • DTE and Network loop back • BERT	1.0.0	See “Consideration #5 below
SRU ports • Add “per port” provisioning for FRAME and INTF variables.	2.0.1	See “Consideration #5 below
SRU BERT capability	2.0.2	See “Consideration #5 below
10BaseT Ethernet Interface • RFC 1490 WAN transport – Encapsulation • ARP, and RIP	1.0.3	
4 alarm inputs • trigger on open or close	1.0.0	
4 alarm outputs (dry contact) • Provisionable severity	1.0.0	
2 ports of IEEE C37.94 compliant serial data over fiber (OHSU). • n x 64 k (n = 1 to 12) Local and network loop back	1.0.0	OHSU ports are a factory installed option
OHSU sync speed and error insertion	Future	Enhance overall speed with which these functions are performed. See “Consideration #3” below.

WAN INTERFACES	REL	NOTES
T1 WAN interfaces • 4 ports of T1 (DSX) • Linear Add/Drop • BERT	1.0.0	
DSU/CSU Selection on T1 WAN interfaces	1.0.2	
WAN Fast Circuit Restore	1.0.2	
E1 WAN interfaces • 4 ports of E1 • Linear Add/Drop • BERT	1.0.3	
SA4 Bit support on E1 WAN interfaces	1.0.3	
Optical T1/E1 WAN option (2 ports, 1- fiber /port) • 8 Mbps max (@ 4 x E1) • Linear Add/Drop • 1 for 1 facility protection	2.0.0	Factory installed option
E1/T1 WAN Facility Protection • 2 working/2 protection	2.0.1	

Operational Considerations for Release 2.0.3

These operational considerations existed in previous releases, and are still unresolved.

Consideration #1 - Certification Testing

The system (all configurations) is scheduled for Intertek Testing Services labs to be certified to the following standard:

(1) Full IEEE 1613 testing
Includes temperature range IEEE 1613 (a).

Consideration #3 - HSU inserting errors and sync-up

When inserting errors into the HSU and when the HSU port is syncing up, it has been observed that this capability is slower then the IMACS platform. Feasibility studies are underway to see if these functions can be enhanced to operate faster than they do in the initial Phase 1 release.
Resolution – This enhancement, if possible, is currently planned for 4Q 2008.

Consideration #5 – SRU traffic using B_5 together with V.14

An issue exists whereby customers choosing to use b_5 framing together with the v.14 interface may experience transport issues when interfacing to an LD-SRU (PRM-822560) card.
Resolution – This capability is currently under consideration.

Contacting Global Service and Support

Contact Global Service and Support (GSS) if you have any questions about this or other Zhone products. Before contacting GSS, make sure you have the following information:

- Zhone product you are using
- System configuration
- Software version running on the system
- Description of the issue

Technical support

If you require assistance with the installation or operation of your product, or if you want to return a product for repair under warranty, contact GSS. The contact information is as follows:

E-mail: support@zhone.com

Telephone (North America): 877-ZHONE20

Telephone (International): 510-777-7133

Internet: www.zhone.com/support

If you purchased the product from an authorized dealer, distributor, Value Added Reseller (VAR), or third party, contact that supplier for technical assistance and warranty support.

Service requirements

If the product malfunctions, all repairs must be performed by the manufacturer or a Zhone-authorized agent. It is the responsibility of users requiring service to report the need for service to GSS.