**SUBJECT:** Siman 401 - YAMAB System

**DOC. NAME:** Interface Requirements Specifications (IRS)

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**List of Changes: YAMAB IRS**

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U -For Update

**Table Of Contents**

[1. Scope 6](#_Toc511325967)

[1.1. Identification 6](#_Toc511325968)

[1.2. System Overview 7](#_Toc511325969)

[1.3. Document Overview 9](#_Toc511325970)

[2. Referenced Documents 10](#_Toc511325971)

[3. Interface Design 11](#_Toc511325972)

[3.1. External Interfaces 11](#_Toc511325973)

[3.2. BITZUIM Interface 12](#_Toc511325974)

[3.2.1. Output Messages 13](#_Toc511325975)

[3.2.2. Input Messages 20](#_Toc511325976)

[3.3. COHAV Interface 27](#_Toc511325978)

[3.3.1. Output Messages 29](#_Toc511325979)

[3.3.2. Input Messages 33](#_Toc511325980)

[3.4. TIFUL Interface 39](#_Toc511325982)

[3.4.1. Output Messages 40](#_Toc511325983)

[3.4.2. Input Messages 56](#_Toc511325984)

[3.5. LRF 72](#_Toc511325993)

[3.5.1. Output Messages 73](#_Toc511325994)

[3.5.2. Input Messages 84](#_Toc511325995)

[3.6. AMTAR 101](#_Toc511326001)

[3.7. KALANIT 107](#_Toc511326005)

[3.7.5. Output Messages 110](#_Toc511326010)

[3.7.6. Input Messages 113](#_Toc511326011)

[3.8. GB Interface 117](#_Toc511326012)

[3.8.1. Output Messages 119](#_Toc511326013)

[3.8.2. Intput Messages 121](#_Toc511326014)

# Scope

This Interface Requirements Specification (IRS/IDD) document describes the interfaces of the (ATE).

## Identification

This IRS establishes the interface requirements of the CSCI identified in the YAMAB project.

The IRS document is identified as document 018082E-00 ZABAD.

This document, applies to the following interfaces:

* ZABAD – ZABAD omputer communication protocol

## System Overview

The is an electronic box containing a CPU, CIO card , and POWER SUPPLY card. The YAMAB computer is a ATOM N455 Type CPU that controls various functions in the YAMAB, designed for Siman 4b tank.



Figure 1 - yamab and related sub systems simplified block diagram

Figure 2 depicts the external and internal interfaces of the subsystem.



Figure 2 - External and internal interfaces of the

## Document Overview

This IRS/IDD defines and describes the software aspects of the YAMAB interfaces to other CSCIs and HWCIs of the Siman 401 System

This document is divided into the following Chapters:

- Chapter 1: This chapter describes the YAMAB, its purposes, the system configuration and the components of the system.

- Chapter 2: Lists the document referenced and relevant to this IRS/IDD.

- Chapter 3: Describes the interfaces to other CSCIs and HWCIs in the system. This section also describes the major interfaces within the CSCI.

- Chapter 4: Contains notes, and an alphabetical list of all the acronyms, abbreviation and their meaning as used this document.

# Referenced Documents

In case of conflict between the documents referenced herein and the contents of the specification, the contents of this specification shall be considered a superseding requirement.

|  |  |  |
| --- | --- | --- |
|  | **Document No.** | **Document Title** |
|  | 20400071056 | מרכבה סימן 4 – רשת תקשורת, אופיון טכני |
|  | 018084E-00 | מערכת בז לטנקי 401 מפרט תפעול |
|  | 017620E-00 REV 01 | מפרט ימ"ב |

# 

# Interface Design

## External Interfaces

The has several interfaces, which connect the with an external systems/sub-systems (HWCI/CSCI).

The external interface of the system is as follows:

* TIFUL - TIFUL computer communication protocol
* BITZ - BITZUIM computer communication protocol
* COHAV – COHAV computer communication protocol
* CPV – CPV computer communication protocol
* MATAL – MATAL computer communication protocol
* AMTAR – AMTAR computer communication protocol
* KALANIT - KALANIT computer communication protocol
* ZABAD – ZABAD omputer communication protocol

## Interface

The YAMAB interface is an Ethernet protocol with the YAMAB computer being the server and the ZABAD computer being the client.

The messages is an Ethernet protocol UDP.

Package structure:

|  |
| --- |
| **Unit Code** |
| **Opcode** |
| **Length** |
| **.**  **Data** |

“Unit Code” is one-byte fields.

“Opcode” is two byte field

“Length” is two-byte fields.

The “Length” describes the number of bytes in the “Data” field.

The IP Addresses of these computes are as follow:

* ZABAD –– 132.4.5.90

UDP socket – 6100

* YAMAB –– 132.4.5.50

UDP socket - 7300

The units codes involved in this interface are as follows:

0x0B - ZABAD Computer

0x47 - YAMAB Computer

### Output Messages

The following list specifies the transmitted data from YAMAB to ZABAD:

1. הודעת חיישנים מימ"ב לצב"ד ‎3.2.1.1
2. All Baz Failures ‎3.2.1.2
3. Baz Failures update ‎‎3.2.1.3

#### ) הודעת חיישנים מימ"ב לצב"ד Periodic data 5Hz UDP)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Unit Code | 47H | | | | |
| Operation code | 0007H | | | | |
| Number of Data bytes without Op-Code | 002AH | | | | |
| Description of Data | Bytes | Description | Type | Scale | Range |
| 1 | 0-2 – מוד בז | Byte | 0-2 | 0 = חירום  1 = ש. לתותח  2 = ש. לכוונת |
|  |  |  |  |  |  |
|  | 2-5 | זווית צידוד מראת תותחן | Float |  | mrad |
|  | 6-9 | זווית הגבהה מראת תותחן | Float |  | mrad |
|  | 10 | סולונואיד הגבהה | Byte | 0-1 | 0 = סגור  1 = פתוח |
|  | 11 | סולונואיד צידוד | Byte | 0-1 | 0 = סגור  1 = פתוח |
|  | 12-15 | ערך איפוס סחיפות צידוד | Float |  | mrad |
|  |  |  |  |  |  |
|  | 16-19 | ערך איפוס סחיפות הגבהה | Float |  | mrad |
| Reason of transmitting |  |  |  |  |  |
| Reaction of the receiver |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  | | | | |
|  |  | | | | |

#### All Baz Failures

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Unit Code | 47H | | | | |
| Operation code | 0007H | | | | |
| Number of Data bytes without Op-Code | 2+2 x Number of error being reported | | | | |
| Description of Data | Bytes | Description | Type | Scale | Range |
|  | 0-1 | Number of Failures | ushort |  |  |
|  | 2-3 | Error Number | ushort | 0-1534 |  |
| Reason of transmitting | Init, communication resume) | | | | |
| Reaction of the receiver | Update Tiful system and Yatush displays | | | | |

#### Baz Failures update

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Unit Code | 47H | | | | |
| Operation code | 0008H | | | | |
| Number of Data bytes without Op-Code | 3 | | | | |
| Description of Data | Bytes | Description | Type | Scale | Range |
|  | 0-1 | Failure Number | Ushort | 0-1534 |  |
|  | 2 | Status | Byte |  | 0 = not exist  1 = exist |
| Reason of transmitting | Baz failure status change | | | | |
| Reaction of the receiver | Update Tiful system and Yatush displays | | | | |

#### 

### Input Messages

The following list specifies the transmitted data from ZABAD to YAMAB:

1. Set Main System Mode ‎3.2.2.1
2. Set Baz Parameters ‎3.2.2.2
3. Set DRIFT Mode ‎3.2.2.3
4. Request Error Table ‎3.2.2.4

#### Set Main System Mode

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Unit Code | 01H | | | | |
| Operation code | 0007H | | | | |
| Number of Data bytes without Op-Code | 0001H | | | | |
| Description of Data | Bytes | Description | Type | Scale | Range |
|  | 0 | System Mode | Byte | 0-2 | 0 = Mod\_mech\_emergency  1 = Mod\_gun\_slaved  2 = Mod\_sight\_slaved |
| Reason of transmitting | On Event (from Yatush) | | | | |
| Reaction of the receiver | Enter requested System Mode | | | | |

#### Set Baz Parameters -

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Unit Code | 01H | | | | |
| Operation code | 000AH | | | | |
| Number of Data bytes without Op-Code | 0006H | | | | |
| Description of Data | Bytes | Description | Type | Scale | Range |
|  | 1 | Baz Param Type | Byte | 0-C | 0 = COMP\_STATIC\_EL  1 = COMP\_STATIC\_DF |
|  | 2-5 | Value | Float |  |  |
|  |  |  |  |  |  |
| Reason of transmitting | On Event | | | | |
| Reaction of the receiver |  | | | | |

#### Set DRIFT Mode

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Unit Code | 01H | | | | |
| Operation code | 0011H | | | | |
| Number of Data bytes without Op-Code | 0000H | | | | |
| Description of Data | Bytes | Description | Type | Scale | Range |
|  |  | none |  |  |  |
| Reason of transmitting | On event (from Yatush) | | | | |
| Reaction of the receiver |  | | | | |

#### Request Error Table

|  |  |
| --- | --- |
| Unit Code | 01H |
| Operation code | 0005H |
| Number of Data bytes without Opcode | 0 |
| Description of Data |  |
| Reason of transmitting | On power on or on communication recovery. |
| Reaction of the receiver | Send All Baz Failures  message |

#### 