

# ISS-4000/6000 Universal PMS Interface Specification

Model Name: ISS-4000/6000

## Introduction

The purpose of this document is to provide a simple protocol for communication with the PMS (Proprietary Management System) for Hotel Management. This document simply tells you the messages that are **MANDATORY** for a hotel Management system. It **DOES NOT** specify the full set of messages that could be implemented.

The purpose of this document is **NOT** to build a universal protocol for interoperability with all PMS flavors.

We just indicate a simple set of messages that **should be SUPPORTED for a hotel Management system**. The possible formats of those messages are also defined though these need to be modified to suit your PMS flavor.

## Physical Layer

1. The two stations are connected at their RS-232 interfaces.
2. Data is transferred asynchronously across the transmission medium between the two station in 8 bit ASCII characters. Each character is framed by 1 start bit, no parity bit and 1 stop bit. Characters are transmitted at the rate of 9600 bits per second.

***Baud Rate: 9600, No parity, 8 bit, 1 stop bit***

## Data Message Format

Data characters are transmitted across the communication link in groups called packets. Packets are delimited by special ASCII characters.

All packet start with an STX character (ASCII 02) followed by any number of ASCII characters called TEXT. The end of the TEXT portion of the packet is indicated by an ETX (ASCII 03) immediately followed by an LRC (Logical redundancy check) character.

*Data Message Format: [STX][TEXT][ETX][LRC]*

-[STX]=ASCII 02

-[ETX]=ASCII 03

-[TEXT]= Please refer below for the samples

-[LRC]= The standard LRC is calculated using a seed value of 0, and bitwise XORing each byte following the [STX], including the [ETX]. This value is transmitted as a single ASCII character immediately following the [ETX] as the final character of the packet

The following diagram demonstrates an LRC calculation (the data is '12345')  
[STX][12345][ETX][LRC].

STX 1 2 3 4 5 ETX LRC

(Hex) 02 31 32 33 34 35 03 32

LRC calculation: 31 Xor 32 Xor 33 Xor 34 Xor 35 Xor 03 =32

## Data Bytes Format

Records are composed of data bytes and link control bytes. The data portion of a record should not contain any bytes normally reserved for link control (Hex 00 through Hex 1F, and Hex 7F). The control characters from Hex 1C through Hex 1F (FS, US, RS) are used by some systems as field separators; for systems using formatted text (guest messages or folios), it is also acceptable to embed such characters as Hex 0A, Hex 0D (LF, CR).

This specification uses as a field separator the bar character ('|' - Hex 7C), the field. By using a field separator, it is not necessary to pad fields to their maximum size. The PMS sends all fields without padding, and when fields transmitted from the other system reference data configured in the PMS (i.e. room numbers, guest numbers, etc.) they should be sent without padding.

## Data Types

In general, fields are either numeric (decimal digits '0' - '9'), monetary (this includes the decimal numeric characters, plus '-', and '.' as necessary), or alpha (all alphabetic letters). Some fields require some combination of these types.

- A - Alpha characters, includes all characters from 'A' - 'Z', 'a' - 'z', any common punctuation characters such as periods ('.'), commas (','), and dashes ('-'), and any characters from the extended ASCII character sets necessary to support local alphabets
- N - Numeric characters, includes '0' - '9', the minus sign ('-') as leading character, and where necessary 'A' - 'F' and 'a' - 'f' as hex characters. These fields always reflect integer values (no decimal positions).
- M - Monetary characters, includes all numeric characters and period ('.') as decimal indicators where necessary. The PMS can handle monetary fields with an implied decimal point.
- AN - Alphanumeric characters, all characters included above as Alpha or Numeric characters.
- ANS - All characters, the entire printable ASCII character set
- D - Date, numeric characters, formatted as YYMMDD
- T - Time, numeric characters, formatted as HHMMSS

## Operation

- Ø The transmission is Full Duplex.
- Ø Once the device gets link it can send the messages. The messages constitute the information regarding GUESTS and ROOMS.
- Ø Every message sent by device should be ACK'ed. This is a lower layer ACK (byte 06). If we receive NAK (byte 15) , we retry RETRY\_NAK times and then give up after logging error and we send Error Message to server and try to re-initialize our device.
- Ø If we don't receive ACK/NAK within T1 interval , we resend message upto RETRY\_NOREPLY times and send TEST message to verify whether link is up.
- Ø We send VERIFY message only to messages requiring VERIFY response. Otherwise we do not send VERIFY message.
- Ø Wait time for VERIFY/ERR message will be T2 time after receiving ACK/NAK. We send TEST message to see if link is up.
- Ø On reception of ERR message we simply LOG the error message and continue normal processing.
- Ø A dedicated Timer gets triggered whenever we do not receive any bytes for a period of T3.
- Ø We send ERR message for UNSUPPORTED/WRONG FORMAT messages.

## Timers and Values

- **T1** : The time period within which we expect the ACK/NAK. (2 sec)
- **T2** : The time period before which we expect the VERIFY/REPLY message. (3 Sec)
- **T3** : The dedicated Timer for Link Failure. We send TEST message on expiry of this timer. The timer expires only if we do not receive any bytes from peer. (60 Sec).

## Retry Values

- RETRY\_NAK : The Number of retries if we receive a NAK. (3 Times)
- RETRY\_NOREPLY : The Number of retries if we do not get any reply (3 Times).

## Error Messages

- MESSAGE\_UNSUPPORTED – Message is unsupported.
- TIMEOUT\_ERROR – Timeout Expecting Reply.
- CATASTROPHIC\_ERROR - NAK/ERROR received for each retry.
- INVALID\_DATA – Data is not Valid.
- UNDEFINED\_ERROR – For unexpected action.

## Messages and Formats

We support the following messages which are basic for Hotel Management system  
All messages will be RECORDID followed by FIELDID FIELDVAL separated by Separator “|”.

The following are the Known and acceptable record Id’S.

- START
- DATABASE UPDATE
- POST
- TEST
- VERIFY
- ERROR
- CHECK-IN
- CHECK-OUT

The field ID’s are specific to each messages and will be defined below when we are explaining the message format.

### 1. START Message:

The Start Message is sent by both PMS and DEVICE on reboot.This is MANDATORY.

Direction : PMS to DEVICE  
                  : DEVICE to PMS  
Message Type : “STRT”  
Response : VERIFY or ERROR Message.  
Attributes : NONE.  
Format : Message Type followed by delimiter  
          : Eg **STRT|**

### 2. DATABASE UPDATE

The database update is requested only by device to PMS on restart or when link becomes up after sending TEST message. The PMS should send VERIFY/ERROR and then start sending Check-in/ Check-Out information.

The PMS should send the information for all rooms whether it is occupied or not. The device just updates the information.

Direction : DEVICE to PMS  
Message Type : "DB"  
Response : VERIFY or ERROR Message.  
Attributes : NONE.  
Format : Message Type followed by delimiter  
Eg **DB|**

### 3. POST Message:

This message is sent from device to PMS when the user of a particular room disconnects internet.

Direction : DEVICE to PMS  
Message Type : "POST"  
Response : VERIFY or ERROR Message.  
Attributes : RN - Room Number  
TA - Total Amount  
DA - Date  
TI - Time  
Format : Message Type followed by delimiter  
Eg **POST|RN820|TA1550|DA010101|TI060400|**

The attributes must be demitted through "|" delimiter.

### 4. TEST Message:

This message is sent by DEVICE to PMS and by PMS to DEVICE to check whether link is up. The device will send this message if it does not receive any bytes for 60 seconds. This message is also sent if we do not get VERIFY/ ERROR message and also when we do not receive ACK/NAK after the stipulated period of time.

Direction : DEVICE to PMS  
PMS to DEVICE  
Message Type : "TEST"  
Response : VERIFY or ERROR Message.  
Attributes : NONE.  
Format : Message Type followed by delimiter  
Eg **TEST|**

## 5. VERIFY and ERROR Messages:

The messages are sent in both directions when we receive any message other than VERIFY or ERROR.

Direction : DEVICE to PMS  
PMS to DEVICE  
Message Type : "VER" or "ERR"  
Response : NONE  
Attributes : NONE for VERIFY message  
Optional ERMSG for ERROR  
Format : Message Type followed by delimiter  
Eg **VER|**  
**ERR|ERMSG"MSGID"**

## 6. CHECKIN Message:

The message is sent by PMS to DEVICE when a guest checks in or when we request a database update.

Direction : PMS to DEVICE  
Message Type : "CHKI"  
Response : VERIFY or ERROR.  
Attributes : RN – Room Number  
GN – Guest Name  
DA – Date  
TI - Time  
Format : Message Type followed by delimiter  
Eg **CHKI|RN312|GNLeon|DA010101|TI060400|**

## 7. CHECKOUT Message:

The message is sent by PMS to DEVICE when a guest checks in or when we request a database update.

Direction : PMS to DEVICE  
Message Type : "CHKO"  
Response : VERIFY or ERROR.  
Attributes : RN – Room Number  
DA – Date  
TI - Time  
Format : Message Type followed by delimiter  
Eg **CHKO|RN312|DA010101|TI060400|**